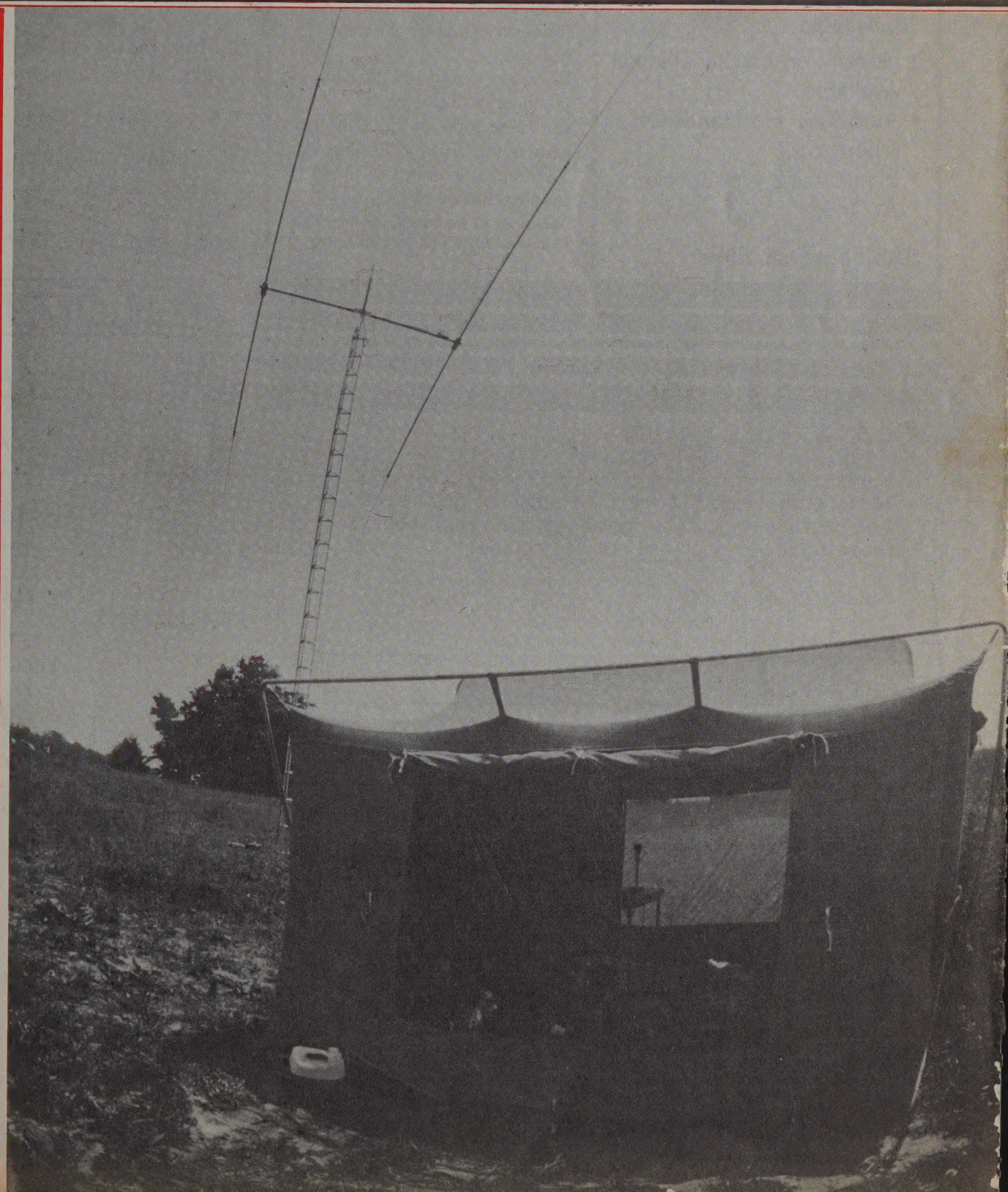
INTN'L MONTHLY MAGAZINE - BY AND FOR ACTIVE RADIOAMATEURS

RADIOSPORTING

AUGUST 1985 No. 9 $2.00



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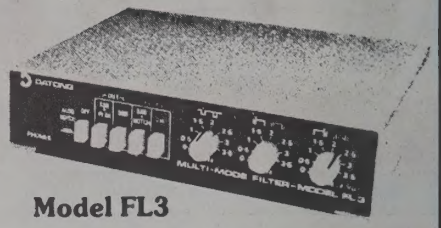

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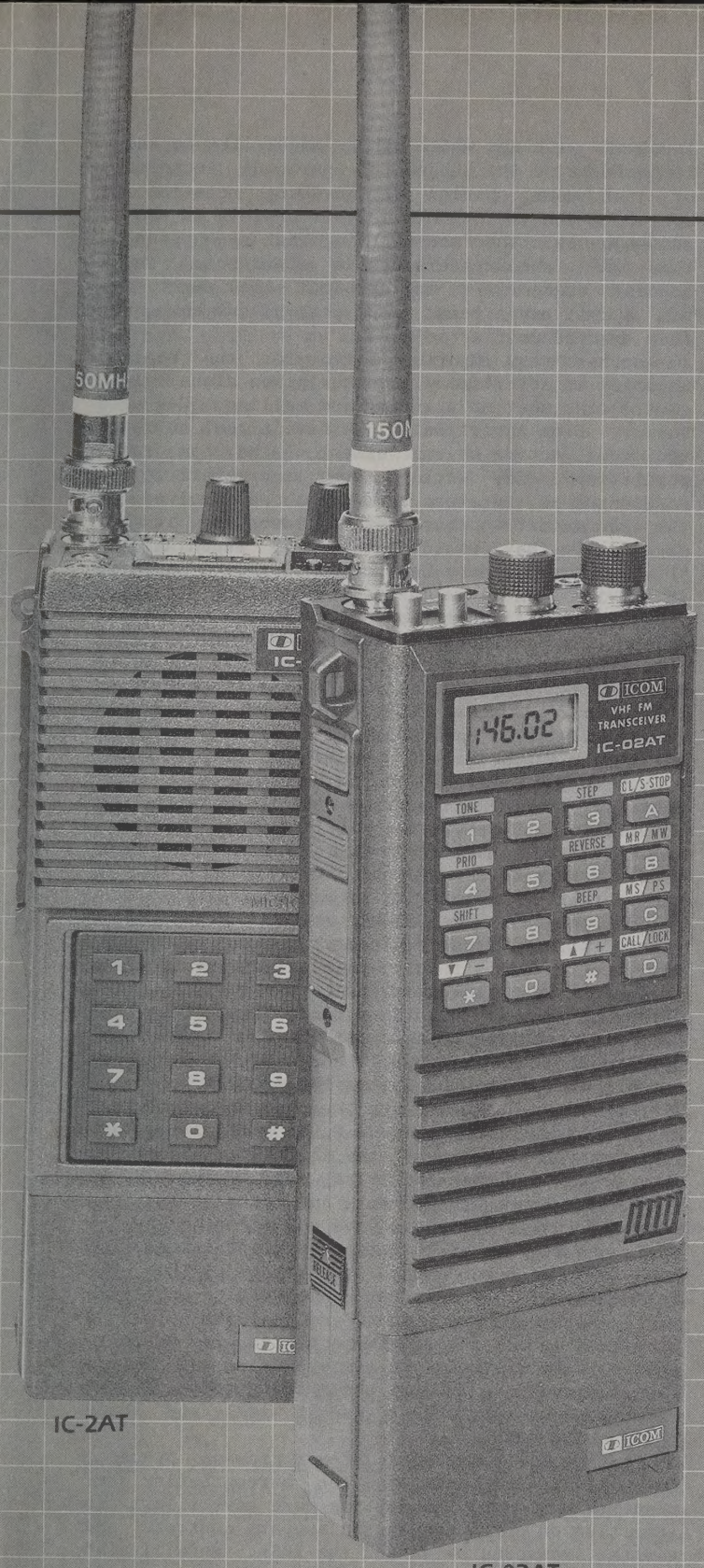
IC-02AT



IC-2AT

IC-02AT

ICOM 2-Meter Handhelds

If you want a 2-meter handheld with exceptional features, quality built to last and a wide variety of interchangeable accessories, take a look at the ICOM IC-02AT and IC-2AT handhelds.

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- DTMF direct keyboard entry
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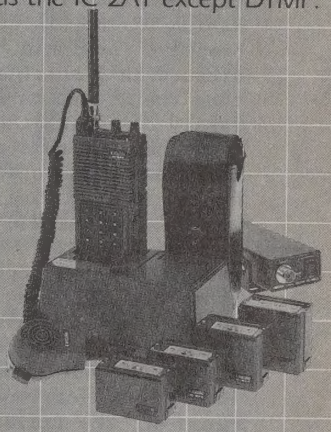
- 3 watts standard, 5 watts optional (with IC-BP7 battery pack)
- 10 memories which store duplex offset and PL tone (odd offset can be stored in last 4 memories)
- Frequency dial lock
- Three scanning systems: priority, memory and programmable band scan (selectable increments of 5, 10, 15, 20 or 25KHz)

IC-2AT Features. The IC-2AT is ICOM's most popular handheld on the market. The IC-2AT features a DTMF pad, 1.5 watts output and thumbwheel frequency selection. The IC-2A is also available and has the same features as the IC-2AT except DTMF.



Accessories. A variety of slide-on battery packs are available for the IC-02AT and IC-2AT, including the new long-life 800mAh IC-BP8 which can be used with both handhelds.

Other accessories include the HS-10 boom headset, HS-10SB PTT switchbox, HS-10SA VOX unit (for IC-02AT) and an assortment of battery pack chargers.

The IC-02AT and IC-2AT come standard with an IC-BP3 NiCd battery pack, flexible antenna, AC wall charger, belt clip, wrist strap and ear plug. See the IC-02AT and IC-2AT 2-meter handhelds at your local ICOM dealer.

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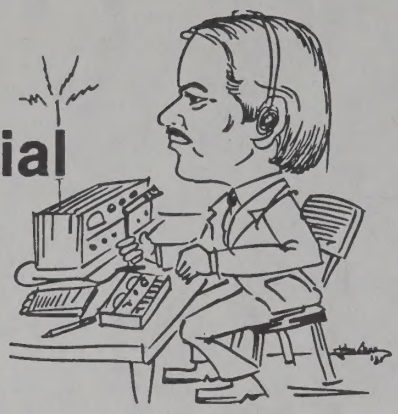
VE3BMV Radiotorial



The *RADIOSPORTING* magazine has successfully completed the first phase of its existence. It has demonstrated that an interesting magazine for the competitive and active hams is possible and needed. There is still a long way to go to reach the quality and format I envision. At this point, our baby - *RADIOSPORTING*, is out of the diapers and becoming a healthy, new kid on the block. Although still dressed in T-shirt and sneakers, it's already getting the attention of its neighbors. It's immediate family is doing their best to help the rascal to grow and to become a welcome and informative member of a noble radio society. A number of well known hams are becoming a part of that family and are encouraging the kid with their contributions in the form of articles. Our sincere thanks to all of you who contribute occasionally or on a regular basis. Your contribution is very much appreciated by our readers. Many have said that this is the only magazine they read from cover to cover.

So far *RADIOSPORTING* is the product of a lot of love and dedication by your editor, XYL Sonya and many of the field's most respected members. It takes time, money and equipment to produce the magazine. Perhaps in a moment of weakness I decided to start *RADIOSPORTING* because I felt all active and competitive hams needed "their our" publication. I also felt that it was time to "pay" back a small portion of the pleasure and satisfaction ham radio has given me over the years. I enjoy writing and speaking. I also enjoy doing new and challenging things, especially if someone says it "can't be done." My successes include quite a few challenges met that "couldn't be", be it while working at IBM (highest IBM award the Outstanding Contribution Award for automating something that "couldn't be"), or achievements in sport and amateur radio (Master of Sport in OK-land, holder of just about all Canadian CQ WW and WPX contest monoband records, including a few world records), or questioning the "good old propagation theory." I like the challenge and I like to do it if others can benefit from it. I don't give up easily and I fight till the end. We have made the commitment to edit and publish this magazine and, above all, to make it a high quality of reading for active ham and a true mirror of their activities. We have done and are doing our best to keep *RADIOSPORTING* the magazine you want.

In order to do so and to continue successfully in our endeavors we appreciate and are glad to receive your help and support. You, as the readers, can assist us by telling others about *RADIOSPORTING* and by writing to us to tell us what you like or would like to see added to our magazine. Send us any news, info or articles about things you are involved with and which others might like to know. It could be on the subject of operating, technical, or just your opinion on anything relating to operating the radio. This is your vehicle so use it and enjoy it. The "worst" thing that can happen is that when the readers hear a contributor in a contest or operating on the band, they might give him a call and a point (and perhaps say how much they enjoyed your article.)

Another very important factor for the healthy magazine is advertising. Subscription alone seldom covers the cost of printing and mailing. We need support from advertisers. We have a tool to reach the most active buying segment of the ham radio population and would much appreciate the manufacturers, dealers and all those involved in the communication business to advertise in our magazine. They would benefit by reaching the "buying power" and by helping to support a magazine that is promoting quality and long lasting involvement in the amateur radio field.

You, as a reader, have considerable "pulling power." If you like a magazine, you will subscribe to it and so support it. As a "consumer" you can in a sense repay the manufacturers and dealers by considering their equipment and services, especially if they advertise and support your favored magazine. If you see their ads in *RADIOSPORTING*, mention it to them in passing and thank them for advertising and supporting us. If they haven't yet, tell them about us and encourage them to advertise here. Advertisers want their advertising dollar to work for them and to bring in added sales.

Idealistically we should be one happy radio family working towards preserving this wonderful hobby for us and for our children. Deregulation and hordes of inconsiderate operators can quickly destroy the amateur radio in a manner similar to what happened with the CB service. Then no one wins. Operators get disgusted with chaos on the bands and turn to another hobby. The market suffers.

You, as an operator, are the most important link in this chain of ham radio. We as a magazine want to be a link between you, the interested reader and the rest of the operators and business. We publicize your achievements and write about big guns and little pistols. Give you ideas on how to build and operate your station more effectively, on how to have more fun and satisfaction. For the business sector of our hobby, we want to publicize their new equipment, review and evaluate it, and provide feedback for improvement. You, the amateur, should support those who are promoting and delivering the quality. You are the guiding force for the direction of our future; use it wisely and shape the hobby's future.

In the following phase of our growing process, we will be concentrating on strengthening our readership base and getting more advertisers to advertise on our pages and to support contests and events sponsored by us and the IRSA. We will also be improving our graphics make-up and the quality of our material.

The cost of postage has gone up in the USA and Canada recently. This increases our burden and it looks like we might have to change our subscription rates a little. The situation with the Canadian Post Office is alarming. We probably have the most expensive postage in the world. Besides jacking up the postage on letters by 2 cents, they are eliminating various classes of lower class mail on printed matter, etc. Everything goes out by air mail; no post card rates, no second or third class,

etc. Service is declining, mail is often late and sometimes arrives in bad shape, torn and chewed up. Some times it is lost, too. (Not the bills!)

My XYL, Sonya, keeps "pushing" to move to W-land. There is something in New York or New Yorkers that keeps pulling them back. Looks like we will make the move within the year. This can only help the magazine and my antenna farm. Soon I might add another call to my collection of callsigns and become "just another W," hopefully with my old suffix 'BU'. I am looking forward to building a new generation of antennas on site, with more room than the present 46 by 125 feet.

While talking to many hams it was enlightening to find out that there is a lot of research work being done in the antenna and equipment design field. Some consider their discoveries a "secret weapon" that gives them an edge in a contest or pileup. Others are busy and plan to do it some day soon. Jim, W2PV was in the latter category. When he retired from GE, he started to publish some of his work in the antenna field. Unfortunately, due to his illness, he didn't finish it. (Apparently the ARRL has the manuscripts and is preparing a publication of Jim's work.) Let's not keep it to ourselves, but let it be known. For that, we will enjoy thanks from many who will benefit from our work. It will make our hobby better and demonstrate that we can still pioneer a few things and do it on a competitive scale with our "commercial brothers." When you come up with a better secret weapon, release the old one to the masses. They will admire you and give you a point in the next contest.

One very positive thing that is a "by-product" of my involvement in *RADIOSPORTING* is the opportunity to meet and "discover" so many wonderful new people. Until recently they were just another callsign in the contest or award listings, or simply on the band. When one has an opportunity to talk to the person who is behind that callsign, one discovers that there are many devoted and radio loving people. It gives one a great deal of satisfaction to have a discussion and exchange of ideas, even if it is 4 a.m. in the Hamvention's hospitality suite.

RADIOSPORTING and IRSA are preparing an awards program and contest to be started in 1986. We are looking for volunteers who can help to administer the awards, and to process the logs from the contests. If you have a computer or access to one, (preferably APPLE II or IBM PC type) please let us know. We'd appreciate your involvement on our awards' and contest committees.

We feel that awards and contests are the salt and pepper of amateur radio activity and therefore will be sponsoring monoband awards on the WARC bands. This will include monoband contests on new bands. (With the exception of the 10 MHz band until the situation of sharing that band with commercial services is clarified. I.e. if commercial services are using specific frequencies, we will have those frequencies off limits in the contest rules. If they can operate anywhere we'll wait until the situation changes.) To use the 10 MHz band for the award chasing shouldn't be a problem, since it doesn't involve anything different from our daily operating. We would count those contacts for something. One thing we will have in the rules is a clause that list operation is unethical and contacts made on list or with other help will not count for our certificates. How will we police that? We won't. One will sign the declaration that he has worked them on his own, or the whole world will know he is a liar because they heard him "working" the list. The tentative starting date will be January 1, 1986. Interested?

The IRSA is growing and gaining strength. We are asking major contest and DX clubs and national radio clubs to join us and designate a representative to our board of directors. We will work together to promote radio sport within the amateur radio community and in the public, as well as coordinating the operating activities. We need more positive publicity because all kinds of services are trying to take over our frequencies. Joe Public knows more about someone eating 300 hot dogs than about the hams saving lives or working 48 hours to beat the world record in the sport of ham radio. How different are we from the race car drivers and sailors? How often do you see the news and results from a ham radio contest on the TV? Daytona 500 and America's Cup are all over the TV sports news and in the magazines and papers. I think we have a void to fill to get a little respect and let our youngsters know who we are. How many people sue a sailor for obstructing his view of the ocean, or an airplane pilot from flying over his property? Yet they sue us for putting up towers or causing interference to their cheaper radios.

Living in the city, I had a problem with interference. I did a lot of work to suppress the harmonics and to minimize the interference. But there will always be some left when you run full bore with a good antenna system 30 feet from the neighbor's TV or radio. When I explained to my neighbors that I have weekend competition four to six times a year and that I represent the country in an international competition, surprise - they were willing to put up with it. Some were even proud to have a neighbor like that. To keep them friendly I offered to help them with broken radios and other appliances. No more broken antennas on my car or eggs on the wall. We've lived happily since. They know if disaster hits and there is no communication with the rest of the world, they have VE3BMV who can talk to anyone in the world, even King Hussein or Rajiv Gandhi. Their kids can get a computer or radio primer here any time and they don't rip my beverage antennas in the park anymore.

We see the news that some services are trying to prevent people from listening to the stuff that is on the airwaves, be it satellite signals, pay TV, or the latest hit, cellular telephones. They want to ban the sale of the equipment capable of receiving those things and to forbid anyone from doing it. This is what we (or our fathers) get for pioneering the radio and TV! It's like forbidding someone to breathe the air! If they don't want anyone to receive their signals, then keep them away from us! If they can't, then they should realize that fact and act accordingly. I wonder how many people would use that telephone for business and sensitive conversations if they knew that anyone can listen to it. In most countries the radio waves are a public property and the law says that you can monitor anything you want, but that you are not supposed to use it for business purposes or for publicity. I'm sure we will see all kinds of services come up with bright ideas and trying to legislate the airwaves to themselves.

So let's not fall asleep just because sunspots are down. Now is the time to sit down and write an article or volunteer your time for the glory of our radio. Let's hear from you. Please use the *RADIOSPORTING* as YOUR magazine. There is no bureaucracy here, just a few radio loving souls. Tell them you read it in *RADIOSPORTING*! 73 de Yuri

DX NEWS

ART HUBERT, N2AU

The DX news from around the world as exchanged on the IRSA net and from other sources: DX Report, Frankford Radio Club, Kansas City DX Club Newsletter, LIDXA Bulletin, NCDXC CW Bulletin, South California DX Bulletin, The DX Bulletin, Westlink Report, Worldradio, JE1CKA, VE2ZP, VE3BMV, KE2C, W2LT, K5OVC, K5UR, and Arkansas DX Net.
The IRSA net operates on Sundays around 14.200 MHz, starting at 2000 Z and 3.830 (Mondays and Fridays at 0200 Z).

3A2, Monaco

is a pirate despite the QSL cards that are being sent out. Monaco authorities have no record of issuing this callsign.

4U, Syria

VE3KFE/4U can usually be found around 14.185 anywhere after 2200Z. Al is located at Golan Heights. Uses TR7, Henry 2K and 204BA for his potent signal. QSL via VE3PET.

5B4, Cyprus

Much activity lately from 5B4 land. 5B4LP - 14.212 at 2235Z, op. Andreas; 5B4OS on 14.212 at 2235Z; 5B4HF on 3.795 at 0220Z.

5N, Nigeria

5N4TME on 14.167 at 0026Z. QTH - Enugu, op. Italo runs 200 watts to a 5 el. tribander.

8J, Japan

Special prefixes from Japan: 8J1XPO, Science exposition Tukuba; 8J3UNV, Universiade Kobe; 8J6IYY Int. Youth Year; 8J8IYY, IYY in Hokkaido; 8J9IYY start in Aug.

9H, Malta

9H1GP on 14.194 at 2342Z, op. Mark. 9H4B on 14.212 at 0015Z.

9Q5, Zaire

WA9PCI/9Q5 on14.195 at 2232, QSL to home call.

A4, Oman

A4XKD on 14.258 at 2301Z. Op. Saif can be found around 14.250 nightly. QSL to CBA.

A7, Qatar

A71BK on 14.165 at 2316Z. Op. Mohammed found at low end of the 14 MHz phone band. Also heard 14.164 at 2226Z.

AH2, Guam

AH2U on 14.154 at 1207Z. Op. Dave with big signal into East Coast.

BV, Taiwan

BV2B on 14.205 at 1314Z. Even after all the JA operations, there is a big pileup on Tim.

CEØA, Easter Is.

CEØAE, Father Dave, who provided many DXers with their first QSO with CEOA passed away on June 7 after a short illness. Father Dave was 61 years old and he will be sorely missed on the DX bands.

CN8, Morocco

CN8CC on 14.226 at 2253Z. Op. Mike is located in Casablanca. CN2AQ, op. Sjperd can be found nightly on 75 meters usually after 0400Z. QSL direct.

DU, Philippines

Lots of activity recently out of DU land. DU1DBT on 14.178 at 1013Z; DU1MEL on 14.166 at 1445Z, op. Mel located near Manila runs KW to el. Tribander. QSL to KC9PX.

EH9, Alboran Is.

A DXpedition for two weeks which ended on June 7 by EA's. Very active on 20 meter CW and SSB. QSL to EA7GW, P.O. Box 262, Malaga, Spain.

FK8, New Caledonia

FK8CR on 3.795 at 0930Z. Op. Eddy can be found on 75 meters almost every morning around 0930Z.

FOØ, Clipperton

QSL cards for FOØXX operations will be in the mail sometime in mid July. YASME asks everyone to please be patient and do not send second requests.

HL, Korea

Much activity from HL land on CW and SSB. HL2SF on 14.028 at 1145Z. Op. Oh; HL1CG on 14.021 at 1215Z, op. Song; HL2XP on 14.008 at 1245Z; HL4XM on 14.201 on 1205Z.

JY, Jordan

JY9MG on 14.187 at 0055Z. QSL to JR3XMG.

OD5, Lebanon

OD5NT on 14.232 at 0037Z; OD5PA on 14.223 at 2310Z. Op. Alec located in Beirut runs 400 watts to 2 el. quad; OD5ZX on 14.233 at 2300Z.

OT, Belgium

this special prefix will be used to celebrate the 150th anniversary of the Belgian railway system.

PY, Brazil

PY2ASK on 3.790 at 0255Z; PY1ZT on 3791 at 0302Z; PU1JMY on 3788 at 0309Z.

S92LB, Sao Tome

is learning English and is active since June. Operates mainly on 20 m SSB.

SU, Egypt

SU1BA on 14.240 at 2345Z, usually works the pile up with help from a W4.

SV5, Rhodes

SV0DH/5 on 14.206 at 2235Z. Op. Bill operates both SSB and CW.

T32, Christmas Is.

T32AB, op. Lamar is active again; heard on 14.202 at 0355Z. QSL to N7YL.

T77, San Marino

T77C, op. Tony has been very active both on CW and SSB. Heard on 14.213 and 14.027 at 2330Z. QSL to CBA.

TA, Turkey

Activity has increased from TA land since amateur radio has become legal. TA1A on 14.024 at 2300Z, op. Unal, QSL to P.O. Box 787, Istanbul; TA1E on 14.223 at 2255Z

UA1, F.J.L.

UA1OT on 14.196 at 2054Z op. Roman; UZ1PWA on 14.020 at 00372, op. Nick. By the time you read this UW3HY/1 should be leaving FJL.

UM9MWO, Kirghiz SSR

very active on 20 m SSB around 14.210 at 0200Z with excellent signal. Watch those summer openings on 20 m over the North Pole.

V85, Brunei

V85MS on 14.192 at 1234Z, op. Moody usually has weak signal into East Coast.

VE2, Zone 2

Kent, VE3JKC will be active from Herrington Harbor in WAZ zone 2 with his new VE2 call from July 9. Kent is a United Church minister and will be especially active on low bands and CW. QSL crads via VE3JDO.

VR6, Pitcairn Is.

VR6TC on 14.171 at 0225Z, op. Tom states he has been busy building a new house which limits his air time; also VR6JR at 14.205 at 0316Z will be there for 5 months.

VS6, Hong Kong

VS6CT on 14.202 at 1315Z, op. Phil quite active. VS6DO on 14.162 at 1255Z. Paul said he now has 92 countries worked on 160. As soon as he reaches DXCC, he will start looking for more stateside QSO's on 160. He also is in the market for a 4-1000 tube for a linear. If you have one, write him at his CBA. Also VS6JH on 14.004 at 1245Z.

XZ2HN, Burma

heard in Europe, operated by OK2BKH from Rangoon, with rumors that he has a written permission to operate.

ZB2, Gibraltar

ZB2ID on 14.172 at 2305Z. Op. Jeff runs low power to dipole, but has good signal. QSL to Gars, P.O. Box 2092, Gib.

To make this column as informative as possible, I need input from RADIOSPORTING readers. In addition to the IRSA net frequencies and times I will also be on 14.250 MHz at 2300Z Tuesday evenings and 3.830 MHz at 0200Z Friday mornings. Also, information can be sent to me at my home address and I will reimburse your postage costs if you wish. Thank you for your help.

Arthur Hubert, N2AU
436 N. Geneva Street
Ithaca, NY 14850 USA

QSL routes

A35CQ	—WA6VNR	K8CRM/KH3	—K8CRM
A35EA	—ZL1AMO	K8PYD/VP9	—K8PYD
A92EM	—G4XHZ	KA8HOK/VP9	—KA8HOK
C6ABA	—G3AMR	KA8IIC/VP9	—KA8IIC
C21BD	—WB0TEC	KC7UU/5N8	—K6EDV
C30BBQ	—OH2BAZ	KE5IZ/PJ3	—WA5ZVZ
C31AA	—I0PO	KP4USN	—KA4YUX
C44LP	—KA3FIB	L2X	—LU2DX
C50RCL	—CT1ASY	LY4L	—UA4LM
C51LBL	—EA3DDD	N5CJB/5N1	—K4ZKG
CE1FGT	—LU8DPM	NA6T/AH4	—KD7P
CE3FIP	—LU8DPM	OX3CX	—SM6HCX
CE5SG	—LU8DPM	P46S	—K3UOC
CE6EDZ	—LU8DPM	PY0FNI	—PY7ZZ
CN8CW	—WA3HUP	SO9FY	—LA9FY
CN8EL	—W2PD	SU1ER	—W4ZWE
CO2HS	—XE1XM	SV1RP	—SV1NA
CQ8CQ	—CT2CQ	SV0DI	—WA4DAN
CT1BLM	—OH2BH	SV0DV	—WB4TDB
CT2AK	—W3HNK	T30AT	—G4GED
CT2FH	—W4JVU	T32AF	—KH6UR
CT2FR	—N4GXX	TF5EP	—W3HNK
DK6NN/C6A	—DK6NN	TG9GI	—I0WDX
DL7AH/3X	—DL7AH	TK5EP	—F6EYS
DL8YR/ST2	—DL8YR	TR1G	—TR8JLD
EL1G	—WD9IDS	TR8AHO	—DK1PO
EL8E	—GM4LDU	TY0ABD	—DJ6QT
EM3AXK	—UA3XEF	V2AZL	—W2HWS
EM5T	—UT4UMV	V3C	—N5DDV
EM6T	—UT4UMV	VP2EH	—KC5EA
EM7BRN	—UB4RWW	VP8BDG	—G4KMG
EM8SCB	—UC1SWI	W4HHB/5N3	—K8LJG
EO1AWL	—UZ1WWE	XF4MDX	—XE1MDX
EO3AIR	—UZ3IWA	XX9UT	—JA1UT
EO3ATO	—UZ3TWT	Y85LMM	—Y25TM
EO6AAS	—UZ8AZW	ZC4MR	—G4SAJ
EO7L	—UL7GWB	ZC4ESB	—Bureau
EU1R	—UR1RWN	ZC4ZN	—PA0GMM
EU2C	—UC1AWR	ZF2AF	—W0GI
EU5T	—UT4UW	ZL7AA	—ZL1AMO
EU6D	—UD7DWA	ZP5JCA	—LU8DPM
EV4AP	—UZ4PWR	ZP5JCY	—LU8DPM
EV9AW	—UW9WR	ZP5LHY	—LU8DPM
EW2C	—UC1AWC	ZP5LOY	—LU8DPM
F6HIX/6W7	—F6EYS	ZP5XDW	—N4DW
FG4CP	—FG7BT	ZP9JCY	—LU8DPM
FG5DL/FS	—F6ARI	3A2AF	—F9FB
FK8FB	—F6FNU	3A2TO	—EA5AGY
FM5BH	—W3HNK	3V8PS	—IN3RZY
FY7BI	—F6FNU	3X0HAB	—DL5DAB
GB1BOY	—G4IVJ	3X0HBG	—F0GTI
GB2BRC	—G4IVJ	4N7A	—YU7AJH
GB2GG	—G4IVJ	4U0ITU	—F6EYS
GB2RUB	—G4IVJ	5N6CJR	—K6EDV
GB3WED	—G4IVJ	5N7HKR	—OE5BS
GB4LI	—G4NWZ	5N8AFE	—G4HVE
GB8WED	—G4IVJ	5N9DM	—I8XIU
GE3VGG	—G4IVJ	5V7RW	—WB4LFM
GV4OVE	—G4AAL	5V8WS	—DJ6QG
GV4BVE	—G4AAL	5W1FC	—WA6FNR
HC8SL	—HC2SL	5X5BD	—DJ6SI *(See Note 2)*
HG40A	—HA5KDB	5X5WR	—DJ5RT
HG40M	—HA7KLJ	5Z4CQ	—WD8IXE
HG40O	—HA3KNA	5Z5EXP	—DJ5RT
HG40Q	—HA8KAX	6W1HZ	—W0ZUZ
HG40U	—HA8UB	6Y5FS/KP1	—6Y5NR
HG40X	—HA4KYN	6Y5IC/KP1	—6Y5NR
HG40Z	—HA1XR	6Y5NR/KP1	—6Y5NR
HP1XXO	—W0ANZ	8P6JQ	—N8DCJ
HW4KR	—F2YT	8Q7CE	—DL9GBS
IK2CKR/8Q7	—I2CRQ	8Q7CK	—I2CRG
J5WAD	—UA4PW *(See Note 1)*	8Q7RD	—DF2RG
J20BI	—F6BFN	9M2HR	—N4FFN
JR8BUU/5N0	—JA8FCG	9M4H	—VE4ME
JW0EQ	—LA5NM	9N1RNK	—*(See Note 3)*
JY8AD	—A71AD	9U5JB	—ON5NT
JY9CL	—G3MUL	9X5WP	—WB6UKD

A71BK	—Mohamed, P.O. Box 1556, Dohar, Qatar
A92EM	—P.O. Box 5486, Manama, Bahrain
CE0FFD	—P.O. Box 004, Easter Island, Chile
CE0ZIG	—Box Mataveri, Easter Island, Chile
CE0ZIJ	—P.O. Box 1, Easter Island, Chile
CE0ZIQ	—Box Mataveri, Easter Island, Chile
CO2PY	—P.O. Box 14, Regla/Habana, Cuba
CO6RL	—P.O. Box 3, Falcon, Villa Clara, Cuba
D68AZ	—P.O. Box 410, Moroni, Comoros
EA9KQ	—Juan, P.O. Box 21, Melilla, Spain
ED0WFE	—P.O. Box 833, Vigo, Spain
FK8FF	—P.O. Box 4202, Noumea, New Caledonia
FK0AS	—P.O. Box 2899, Noumea, New Caledonia
FM5WO	—P.O. Box 287, Fort-de-France, Martinique
FO0XX	—Yasme Foundation, P.O. Box 2025, Castro Valley, CA 94546
FY4CD	—P.O. Box 747, Cayenne, French Guiana
GJ2LU	—P.O. Box 338, Jersey Island, U.K.
HG40B	—P.O. Box 102, Monor, Hungary
HL9AA	—Ed Clark, APO San Francisco, CA 96301-0042
HS0A	—P.O. Box 2008, Bangkok 10501, Thailand
J6LMF	—P.O. Box 493, St. Lucia
KC6AF	—P.O. Box 301, Khula, Eastern Caroline Islands
LA6WEA	—P.O. Box 7, 8801 Sandressioen, Norway
ST2FF	—P.O. Box 80, El Morada, Omdurman, Sudan
SV5TS	—P.O. Box 251, Rhodes 85100, Greece
T32AN	—Phil Wilder, P.O. Box 667, Aiea, HI 96701
TA1D	—P.O. Box 1167, Istanbul, Turkey
WA4TLR/5N0	—Lagos DOS, Washington, DC 20520
XX9AN	—P.O. Box 468, Macao
YI0AY	—P.O. Box 5864, Baghdad, Iraq
ZD7BJ	—Brian, P.O. Box 25, St. Helena Island
ZK2IK	—Peter Mulhare, 15 Jessie Street, Pepone, New Zealand
ZS3GB	—P.O. Box 1165, Tsumeb 9000, Namibia
4X5DS	—Israeli Radio Club, P.O. Box 4099, Tel Aviv, Israel
5N24AMA	—A. Amar, P.O. Box 7355, Kano, Nigeria
6T5RG	—Rich, P.O. Box 322, Nouadhibou, Mauritania
7P8DE	—P.O. Box 197, Deuta, Lesotho
7X2KS	—P.O. Box 84, Algiers, Algeria
7X2LS	—P.O. Box 84, Algiers, Algeria
8R1RPN	—P.O. Box 12282, Georgetown, Guyana
9J2BR	—P.O. Box 31617, Lusaka, Zambia

NOTES:
1. Cards for J5WAD via UA4PW must be sent via P.O. Box 88, Moscow, USSR, and not the address given in past routes.
2. Include an s.a.e. not smaller than 110 × 160 mm for your return QSL. Also include a donation for the Ugandan hospital if you care to, (it's tax deductible).
3. Cards for 9N1RNK should go via 9N1MM, address given in the Callbook.

(TNX WORLDRADIO)

AFRICAN NOTES

Sam Ford, ZS6BRZ, 3D6DX

Propagation all 'round seems to be very poor - including 40 m to ZS, although there have been some openings from time to time on 80 m. One evening about a week ago I managed to snare TA1E and TK5UC on 20 at 2100Z! On most evenings at that time the band is just noise, it's like the "Guy Up There" closed the door, took the key with him and went to bed!! I guess it is time to get onto 70cm and work Oscar 10. For me that would still be quite far away as I do not have 70cm equipment yet and am still very much an HF DXer and Contester. There are still so many records to be brought to Southern Africa and with each contest it means that much more experience. I am hoping that some of the friends I worked with in 3D6 will field their own stations one day to make the Europeans and the Americans from Alaska to Argentina realize that there are points to be gained with their beams down in this direction. Also, I would like to be able to clear up the fiasco that took place in Botswana (A2) so that DXpeditions will be permitted.

LICENSING
BETWEEN THE U.S. AND SOUTH AFRICA

I am not too sure how much is known on reciprocal licensing between the US and South Africa. (I believe this also applies to Canada as well). The final plans and agreement have, to my understanding, already been completed and simply require confirmation by the State Department in Washington. This is not general knowledge as yet so I am not certain when it will actually take place. At present, visiting amateurs from W and VE can apply for a guest license by writing to The Director General, Telecommunications Division, Private Bag X74, Pretoria 0001, with a copy of the operator's original license duly authenticated or certified. This must be done at least 8 weeks before arriving in the country and the guest license is valid for a period of 3 months. However, for amateurs living in South Africa for longer than three months, for example or those here on a yearly contract, they are obliged to write our Radio Amateur's Examination which consists of a section on Electronic Theory (with a compulsory question on Radio Interference) and a second section on Radio Rules and Regulations. The examinations are set twice a year - May and November.

The granting of a full license is not automatic after the passing of the exam. The candidate has the option of applying for a restricted license (a ZR call) which restricts him to operating in the bands 50 MHz and above or sitting for a CW test of not more than 12 wpm. Naturally many opt for the easier way out and work slowly at their CW while enjoying the pleasures of 2 m operation. There are no differing license classes as they have in the U.S. and a full ZS call is equivalent to an Advanced License. With the concluding of the reciprocal agreement, W and VE may now obtain full ZS calls without going through those strict formalities, with the proviso that U.S. Novices can obtain the ZR call confining them to VHF operations only.

Our Bands are the same as that of Canada but include the new WARC Bands of 10, 18 and 24.5 MHz. On 80 m we are not permitted beyond 3.800 MHz and on 40 m the band limit is 7.100 MHz, so often we have to operate split in QSO's with US stations.

Bands close here rather early, around 1830Z. ZS3HL and ZS3TL have been fairly active, working a string of JAs and some Europeans on 20 m at about 1600Z.

(ZS6BRZ)

ANOTHER HAM SHUTTLE

Two German radio amateurs may be carrying a ham station aboard Flight 61 - A in October.

First reported in July's 73 Magazine and since confirmed with NASA/JSC by Ron Neal, K6DUE of NBC News, Dr. Ernst Medsserschmid, DG2KM, and Dr. Reinhard Furrer, DD6CF, will be on board the space ship Columbia for the Spacelab-D1 operation and hope to engage in multi-band operation.

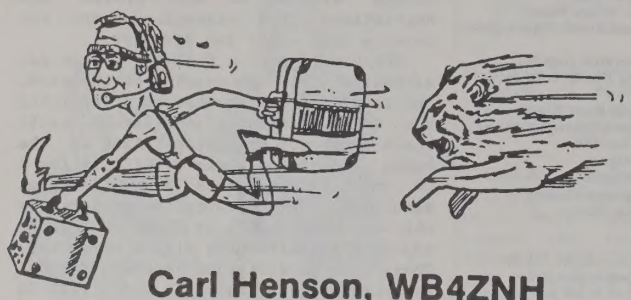
Reportedly built by the European electronics giant Robert Bosch Company, the unit is capable of four 2 meter and eight 70 cm channels. In addition to two-way FM QSOs whenever the astronauts are available, automatic logging equipment is planned for recording all received calls when they are busy with other Spacelab duties.

The Bosch built package will also have a 1 watt 70 cm beacon for determining when the shuttle is within your communications range.

The gear to be carried by the two German astronauts appears to be constructed for cross - band rather than in-band operation, and thus may require terrestrial stations to be equipped to operate in both bands in order to complete a two-way QSO.

Also scheduled to be on board Flight 61 - A is Dutch astronaut Wubbo Ockles, who early last year had announced through the Netherlands national amateur radio association, the VERON, of his intention to obtain a license and become the first European amateur to operate from space. Since that initial announcement, no further word has been heard in relation to his fulfilling this desire. (Westlink Report)

DXpeditioning



Carl Henson, WB4ZNH

The young man got up early that Saturday morning. He kissed his sleepy wife and said, "I've got to be at the Hamfest early to take that General Class exam again." She smiled back and answered, "Good luck, honey. I know it means alot to you."

Determined to finally pass on his third try at the elusive General Class ticket, the Novice drove nervously across town to the Hamfest where the exams were being given.

Hamfests were new and interesting experiences to him. The Hamfest completely engulfed the Novice's senses since he felt so good about the test he had just taken. Surely it was a sign: the prize announcer called him to the speaker's stand to receive one of the hourly prizes, an ARRL Handbook and Antenna Handbook. A few minutes later someone was overheard to say something about hospitality over at Ack Radio. Ack Radio (where our young Novice had purchased his SX-101A Receiver) was always an interesting place to browse, so it seemed a natural place to go.

An impromptu band had begun to beat out a ragtime rhythm and everyone seemed to be having a great time. Someone mentioned "DX Club." Instantly our Novice joined the QSO. How could he find out about this DX Club? So far this rank beginner had only contacted stations in England, France, Italy, Germany, Puerto Rico, Hawaii and Japan. He had discovered a really thrilling aspect of this new hobby. "Well," the fellow responded, "find Chaz Cone, W4GKF or Phil Latta, W4GTS; either one can give you that information." Now a new interest was easily noticed in the young man as he peered awkwardly from name badge to name badge. Then there it was. After a quick introduction, the young and eager neophyte blurted, "Chaz, someone told me that you could tell me about the DX Club." In the conversation that followed, plans were made to campaign this Novice to DXCC as a Novice. The beginner smiled and said that he felt good about the General Class test he had just taken and hopefully there would not be time to get the DXCC before a new license arrived. An invitation was extended and the excited Novice rushed home to tell his spouse about the fun and excitement he had experienced that day.

That first DX Club meeting cinched it. The program was VERY special. How fortunate the Club was to have the loan of the slides and a tape recorded narration by Martii Laine, OH2BH, about his DXpedition to Equatorial Guinea and Annobon Island. The presentation was wonderful! The Novice had never heard of a DXpedition before. It was thrilling, every bit as good as STAR WARS! Another thing happened that night. Chaz Cone, W4GKF, got up and announced that he had put together a package of information, to help anyone who was interested, to get a /6Y5 license. Having been to Montego Bay, Jamaica on an earlier vacation trip, and with a long weekend coming up soon, our star-struck beginner folded the papers and put them in his pocket. All the way home that night, he thought about what it must have felt like visiting and operating from such remote places as Santa Isabella and Annobon Island.

Again, fate must have been on his side. The authorization to operate from Jamaica arrived in the mail on Friday before the departure on Saturday. The equipment was all set. A borrowed Yaesu FT-101, a 15 and 20 meter dipole, and an old 4BTV vertical were ready to make the trip.

Everything went smoothly, except for one problem: Our newly licensed General Class Ham was timid! Three days were spent at the Holiday Inn at Rose Hall, Montego Bay before he was forced to put up a 15-Meter dipole. Forced?! Yes, he had promised schedules with WN4DQD and WN4GBT from whom he had borrowed much of the gear for the trip! The security guards at the Holiday Inn, instead of being critical, graciously helped with the stringing of the dipole from the 4th floor balcony, and someone from house keeping went into a vacant room and dropped the end of the nylon cord to the ground for the other end. 15 Meters was wonderful! Pileup! The schedule with WN4DQD and WN4GBT was dutifully kept and enjoyed. The next day our new DX operator found the band much less crowded early in the day. A long chat was had with two, more laid-back, DXers (as compared to the hungry hordes of the day before). The first was Tom, W5RG, and the second was Jim, W5TWI. Several hundred QSOs were made in the brief remainder of the visit to Jamaica.

As most of you have guessed, I have been telling you about myself. What has transpired since that warm June day in Atlanta in 1973? Well, W4GKF has been made a life member of the Southeastern DX Club and though not actively DXing anymore, still makes considerable contributions to the Club. Martha is now licensed, WN4FVU, and carries her share (and more) on our DXpeditions. Jim Wilson, W5TWI, is now living back in Atlanta and is W4MWT. Tom Gentry, W5RG, the Mayor of 15 Meters, became a silent key a number of years ago. I will always regret never accepting his invitations to visit him and his wife in Dallas for a Texas-size steak each time I QSOed with him over the years. WN4DQD and WN4GBT both upgraded but have both since gone inactive in Ham Radio. Phil, W4GTS, is still actively DXing and has operated with me from both W4NT/C6A (Southeastern DX Club Contest operation; see our QSL card in the new Kenwood 940 Ads!) and VP5EE (SEDXC contest operation, ARRL DX Phone 1980, Caribbean Winner).

As for WN4ZNH, with an Extra Class license now, I have 308/314 confirmed and have operated from about 23 different DXCC countries, including Equatorial Guinea and Annobon Island! The thrill is a little different, but it is still there. After two years as Vice President and two years as President of the Southeastern DX Club, I am now a candidate for Director of the Southeastern Division of the ARRL.

My sincerest thanks to all of my fellow hams who "Elmered" me and countless others in hamming and in DXing, and to all of you out there who are continuing the wonderful tradition of "Elmer": Keep up the good work, and TNX! (WB4ZNH)

BANNING THE OWNERSHIP OF RECEIVERS

Banning the ownership of receivers in the 800-900 MHz band is the aim of California State Senate Bill 1431. Senator Herschel Rosenthal (Dem - 22nd District) introduced the measure to protect the security of cellular telephone calls, as lobbied for by cellular phone service providers. If passed, the bill would outlaw the manufacture, importation, sale, or use or ownership of any piece of receiving equipment, including scanner radios, that had the capability of listening in on cellular radiotelephone conversations. The measure would carry a minimum $2,500 fine for a first offense and stiffer penalties for additional violations. These would include a maximum of $10,000 in fines, one year in jail, or both. The legislation if all inclusive, allowing no exemption for radio experimenters. Due to some quick political action by Los Angeles attorney Joe Merdler, N6AHU, it appears that the proposal has been place "on hold." Merdler, whose rise to fame followed his national campaign to rid the amateur bands of malicious interference, took on this latest challenge when he realized how seriously this statute would affect the future amateur use of the 902 MHz band. He also recognized that the Communications Act of 1934 (as amended clearly makes regulation in this area a federal matter, not one subject to state control.

Exactly what activities attorney Merdler has undertaken to "disconnect" Senate Bill 1431 were not made public at press time, but his entrance into the matter has already had the effect of delaying further action on the bill, at least for the moment.

When asked by Westlink Report for details, Merdler replied that due to the delicate nature o of the situation, he would be unable to discuss it at this time.

This is one more case of local government trying to regulate communications. (Westlink Report)

IMMOBILE MOBILE TELEPHONE

California may be looking into the possibility of banning in - motion use of cellular telephones and maybe other two-way mobile radio devices.

KNX "Newsradio" in Los Angeles carried a story from its Sacramento correspondent Pat Davis on June 20 stating that at the request of Senator Herschel Rosenthal (Dem-22nd District), the California legislature is preparing to begin a study of various aspects of cellular radiotelephone use with major emphasis placed on the safety, while in motion, of this equipment.

While limited to cellular radiotelephone in scope, there is ample reason to believe that any law resulting from the study could be applied to other forms of personal communications, including ham radio and CB.

Industry sources indicate that some 46% of all vehicles on the road are at least occasionally equipped with some form of two-way radio, usually Class D 11 meter Citizens Band radio. It is estimated that more than 10 million CBers live in the state, while 57,000, or 13.8% of the nation's radio amateurs make California their home. When the large number of land mobile and cellular telephone users if added to the total, you almost certainly have a law that would be impossible to enforce, assuming it was able to make it through the entire legislative process.

Los Angeles attorney Joe Merdler, N6AHU, who is already involved in trying to stop the proposed anti-800 MHz scanner law in the state is aware of this latest action from Sacramento. He told Westlink Report just before deadline that he will personally undertake the defeat of any measure that might arise out of this proposed legislative study.

(Ed. WA6ITF note: Maybe it's finally time that the amateur radio community requests the FCC to issue something along the lines of PRB-1, but applying to the whole field of radio regulation. Cities, counties and now even states are trying to get into the business of regulating radio communication, despite the clear language of the Communications Act. Unless we want to see the equivalent of 50 or more FCCs which change the rules every time we cross a state line (or a city's), we must act now. It is time for the FCC to assert its authority once and for all.)

(Westlink Report)

CANADIAN HAMS REACT

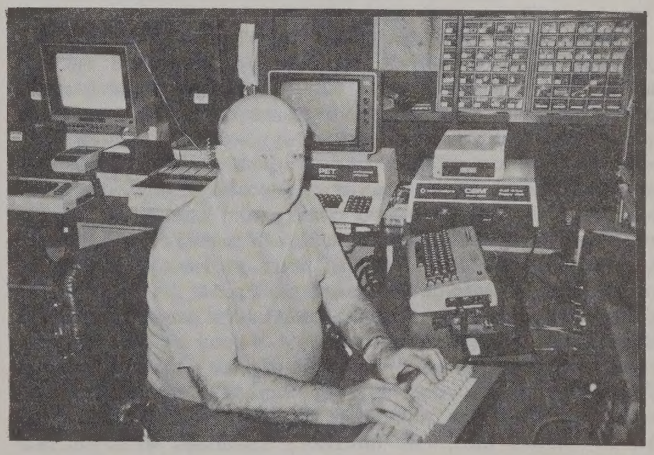
Amateurs in Barrie responded quickly when a recent tornado leveled a part of that city and some surrounding towns.

The local 2 meter repeater lost its AC mains power, but VE3FJB drove to the site and provided power from his automobile battery until a portable AC generator could be brought in.

The storm damage to the area telephone system and an immediate overload from anxious callers made amateur radio communications a vital and necessary part of emergency relief efforts. VE3NLN, the local Emergency Coordinator, had stations set up at Grand Valley, Alliston, Tottenham and Barrie in addition to providing communication between Red Cross Headquarters in Barrie and Toronto.

It was noted that the value of a newly constructed VHF/UHF linking system in that area, used in conjunction with various repeaters.

(Westlink Report)



Ray Hunter, VE3UR, better known as "Uncle Ray" enjoys all the computer modes of operation. Ray used to be the local Mr. Drake Man, selling and servicing the Drake equipment. He is an active DXer and operates from CW to RTTY and AMTOR. Ray has four computers taking care of "chirpy modes" - Commodore PET, VIC-20, C-64 and Tono terminal. The equipment is Drake TR7 transceiver and L4B amp.

ADVERTISE IN RADIOSPORTING

The GEO–DX Index

Bob Nash, VE3KZ, VP2KBZ

Those involved in any sport have an overwhelming need to quantify their endeavors for their own edification and that of their competing colleagues. Those of us in this Radio Sport are no less afflicted by this compulsion; those of us with some computing facility readily available have the questionable distinction of being able to optimize this affliction to a full-scale addiction.

We count countries, we count zones, we count contacts, we count prefixes, we count counties, provinces, states, laens, cantons - the list is endless. We even do traffic counts for our nets. All these, when connected to such as frequencies, times, power levels and locations, yield numbers which allow us to better appreciate the sporting element of our hobby, be it DXCC, BPL, WPX or a contest score.

Surely the most intense number game is played with country counts in connection with DXCC and contest operating, DXCC requiring numbers of targets with only one contact per target, and a typical world-wide contest requiring both numbers of targets and contact numbers. One intriguing element that we keep trying to capture in numerical form is the way geographic differences and population distribution modify the performance through geography's control of propagation. This introductory part of the study, presented in this issue, outlines a plan for a novel look at DXCC and DX contesting using some of the number crunching abilities of a desk-top computer. The questions of proximity to large population areas, to large groups of DXCC countries and to the auroral regions are all addressed, singularly and in combination to simulate the most important performance parameters in DXCC and contesting under "normal" and "disturbed" conditions.

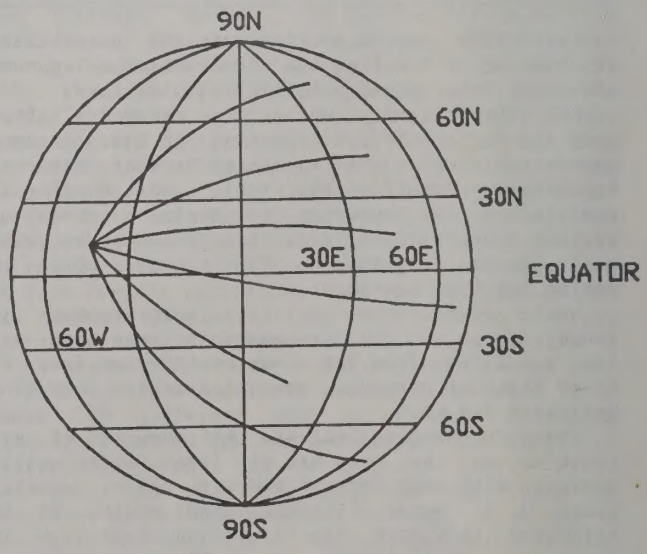
One of Canada's most questionable natural resources is the North Magnetic pole located in VE8 at approximately 76 N, 102 W, surrounded by a zone of magnetic focusing and ionospheric disruption extending approximately 26 degrees or about 1800 miles from this pole. The southern version is at approximately 68 S, 145 E. You have only to be a KL7, VY1, VE8 or OX to understand the full import of proximity to this marvel of nature. To be within about 3000 miles of this point, or of the corresponding South Magnetic pole, is to be constantly aware of Mother Nature's ingenious but sometimes malevolent variety. Many of us spend most of our lives operating within these areas, covering as they do, all of Canada, northern USA, northern USSR and northern Europe. Others outside these zones note our untimely absences with regret during disturbed conditions, as they carry on working unhindered into the rest of the world (except that part in our shadow!) One of the purposes of these articles is to analyze the effect of the auroral activity on the quantity and diversity of contacts from any point on the earth, a truly appropriate study for a VE from northern Ontario.

The technique used in this analysis depends upon a geometric model of the earth with auroral caps extending 1800 miles from the magnetic poles. The use of a cap instead of a 400 mile wide annular ring is an extreme case but provides a worst-case scenario when put side-by-side with a parallel analysis, which deals with the case of no auroral effects whatsoever. From any point on the Earth (short) paths are projected to the centers of 71 other areas of the earth's surface, 30 by 30 degrees of latitude and longitude, averaging about 2.5 million square miles each. Within each such area the number of amateur stations is tabulated in a data-base, estimated from Call-Book information, as is the number of DXCC countries, large countries being approportioned to the areas they encompass.

Both of these are direct proportionality factors. However the great circle distance from the area of interest to this target is an inverse factor. A figure of merit for the location as a contest QTH is obtained by summing the Countries X Population / Distance for each of the 72 possible target areas (using 500 miles for the "local" area). For DXCC work, only Countries / Distance would be used as the criterion. For each, both a "Quiet Sun" index and a "Disturbed Sun" index can be found, the latter by eliminating all paths which cross the auroral caps. The ratio of these indices also gives a measure of the variability of expected propagation from that location.

Before I leave you hanging, waiting for the results of all this number crunching next month, let's look at a few typical inputs to this formidable calculation. A typical small target area might be that bounded by 0 and 30 E longitude and 60 and 90 N latitude. This area is occupied by OJ0 and all of OH0, giving an amateur population count of approximately 16,500 and a country count of 5.7. The distance from US locations will vary from roughly 3700 miles to 5700 miles, with all such paths traveling through the auroral cap! You have to get out to VO1 to get that path clear!

Next month we will have a detailed look at how geography affects our Radiosporting effectiveness. Perhaps then we, with the help of a computer can together search for that perfect QTH! (VE3KZ)



Paths to Various Targets From a Western Site

CONTESTING IN BULGARIA

Wally Stefanoff, LZ2CJ

The RADIOSPORTING magazine seems to be getting better and better. Yuri and the staff have really found what kind of magazine we contesters were looking for in recent years. This is why I was happy to write the following about contesting and contest stations in Bulgaria, hoping that this article will be interesting to amateurs world-wide.

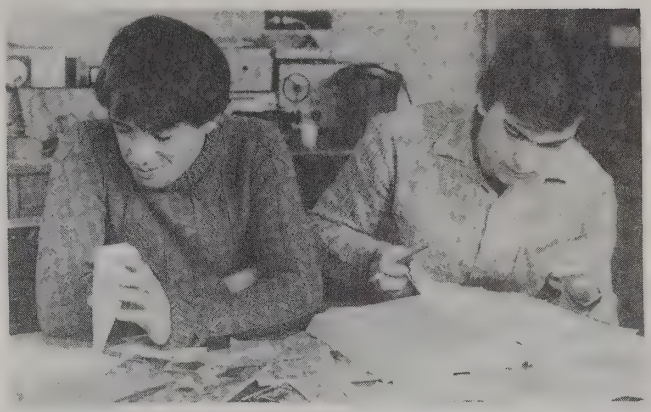
There was a time back in 1960's when all amateur equipment in Bulgaria was one hundred percent home brewed. Building your own transmitter and receiver was a real problem and it was considered as a big achievement to do so.

Individual amateur stations were few and contest activity was low. Until 1979 the commercial equipment was only at LZ1AB (Drake TR4C and L4B) and at Central Radioclub of Bulgaria, LZ1KAB (Heathkit SB-104 and amplifier). There may have been other individual stations using commercial equipment that I was not aware of.

In September 1979, LZ1KDP was another club station which obtained a commercial rig - FT101E. Finally, the operators at LZ1KDP did not have to spend alot of time designing the transceiver, looking for parts and trying to build a new rig that would be comparable to commercially built transceivers. (The old home brewed rig worked on 20 and 80 meters only.) The acquisition of the Yaesu transceiver left us enough time for building a good new power amplifier and the most important thing - a competitive antenna system suitable for contest operation.

The rest of the Bulgarian active contest stations were still using home brew radios until 1982. From that year it became easier to import commercially made amateur radio equipment into Bulgaria, either for personal use or for club stations. In 1982 the Bulgarian Federation of Radio Amateurs (BFRA) took the initiative and imported Kenwood TS-830S transceivers for all district club stations in the country. (There are 28 districts and 28 district radio club stations in Bulgaria.) Within the time passed, many individuals and club stations all around the country managed to obtain commercially made equipment (including the author, who acquired an ICOM IC-701 transceiver in 1982).

This is the LZ2KTS contest crew: (l. to r.) Bob, LZ2HE; Vasco, LZ2CC; Mike, LZ2DF; Ogy, LZ2PO



LZ1KDP QSL crew Stefan (left) and Willy confirming received direct QSL cards. It takes 3 IRC (or $1) for air mail postage to countries outside of Europe

The operators were now able to pay more attention to their amplifiers and antenna farms. This is a good place to mention a fact many already know - when a contester is using modest equipment, he has to use all of his skills during the contest to be able to make a good score. This is what we were doing in the past and this is what made us good contest operators.

The situation described above will explain to many of you the progress LZ contest stations have made in international contests the last couple of years. After getting new, more modern equipment, our contesters got used to it very quickly and have been able to show what they had learned in the "good old days" of home brewed radios, improving their scores very dramatically!

Some will say: "Boy, just take a look at the top scores and you will see the same LZ callsigns repeating themselves in every one of the international contest results!" Well, I agree with that and I am going to explain the situation.

Here in Bulgaria, individual or club stations are proclaimed "Champion of Bulgaria in Radiosport - HF Contesting" in individual and club station categories. The BFRA uses results obtained in the selected domestic contests and LZ DX WW contest and, based on the placement of the stations in each category, assigns the points and selects the winners. BFRA is also issuing a special award to those who win first place in the IARU Radiosport contest, which has been considered here as a "World Wide Championship" competition for amateurs around the world. Awards by BFRA are given to those who win the contests organized by various national amateur federations, like the ARRL contest, the OK DX contest, the YU contest, etc. The surprising fact is that the well known CQ WW DX and CQ WPX contests, which are the most prestigious among serious contesters around the world, are considered organized by individual group of amateurs and are not counted at all! All this and the fact that a LZ station needs only an 80 m dipole to participate in local LZ contests will explain the repetition of the same LZ callsigns in the top score boxes of international contests. (Local LZ contests are held

on 80 m band only!)

With the above comments the author, of course, is not saying that every LZ station will take first place in the world in any international contest it decides to participate in. But the number of LZ stations participating in big contests will rapidly increase if changes in the scoring system are made by the BFRA. This has been suggested to BFRA and the answer will come some day. The number of LZ stations participating in local LZ contests is a couple of times greater than the number of stations entering the international ones.

Another factor we have to contend with is the "language barrier", especially when we operate on phone and in the SSB contests. This is another factor reducing the number of participants in phone contests.

Boris, LZ1OM, a chief operator of LZ1KDP club station right after the visit by W6YY. The equipment is TS-830S + VFO and home brew amplifier 800 W output built by LZ1OM.

At the end of this article you will find more information about the equipment used by some of the successful LZ contest stations, plus some details about their antennas. Listed also are achievements of LZ contest stations during the last few years. The last thing to be made clear is the curious fact that no one at LZ2KTS, LZ1KDP and LZ2AB or LZ2CJ is a professional in the field of radio electronics or communications.

STATIONS AND EQUIPMENT

LZ2KTS station has a special contest QTH about 500 m above sea level in a wooded area on the top of the hill.

The equipment shared with LZ1KZA gang includes: two TS-830S, two TS-430S, two TS-930S, two TL-922A plus some home brewed transceivers and three home brewed amplifiers.

The antenna farm includes: 3 el. Quad on 20 m and 4 el. quads for 15 and 10 m bands on one tower 28 m high. The second tower has 5 el. 15 m beam. The fixed wire beams are used on low bands: 40 m 7 el. to US and 4 el. to Japan; 80 m 6 el. to US and 3 el. to Japan, all at 20 m above ground. On 160 m, a 24m base loaded vertical with beverages for receive. Assorted dipoles for all bands complement the setup.

LZ1KDP is in the city area (high noise level) located on the top floor of a large building. There is another similar building parallel to their QTH and the distance between them is 45 m.

More operators from LZ1KDP: (l.to r.) Gosho, LZ1ZF; Julian; Dan, LZ2UU; standing is Stefan.

The equipment is two TS-830S and a home brewed amplifier.

Antennas used are : 2 el. delta loop for 20 m, 6 el. log-periodic monobanders for 15 and 10 m bands, all at 30 m. Fixed wire beams for low bands: 4 el. 40 and 80 m monobanders to Caribbean area and 2 el. quads to VK/ZL on 40 and 80 m at 20 m high. The 160 m 4 el. is a "secret weapon" bidirectional array switchable Caribbean - VK/ZL.

LZ2AB has a very good location on the top of a smooth plateau (rocky terrain) about 300 m above sea level, higher than anything around.

The equipment is all home brewed: the transceiver is of a UW3DI design with an amplifier.

The antennas are: 2 el. quads for 20, 15 and 10 m at 22 m tower. 6 el. quad for 10 m on a 15 m tower. 2 el. quads for 15 and 10 m bands on 10 m tower. Phased 2 el. delta loop for 40 m at 10 m. 24 m high vertical for 80 m. Inverted Vee for 160 m at 15 m. Dipoles for all bands.

LZ2CJ has a second QTH on the top of a hill 100 m above sea level. All except the NW direction (USA) is a smooth valley.

Equipment is ICOM IC-701 and a home brewed amplifier.

Antennas are 2 verticals for 160 m band (base loaded, 20 m high) in phase. For receiving four beverages are used in the direction of USA, S. America, JA/USSR and Africa - all 170 m (500 ft.) long with W8LRL 20 dB preamplifier.

Rumen, LZ2RS operates his home brewed station.

Contest results of Bulgarian stations:

CQ WW DX SSB
1983 LZ2KTS (OP:LZ2CC) 21 MHz 2nd world, Eu record
LZ2CJ 1.8 MHz 2nd world, 1st Europe & record

CQ WW DX CW
1980-83 LZ2PP 3.5 MHz finished in top five world
1983 LZ2KTS (OP:LZ2CC) 21 MHz 5th world, 1st Eu
LZ2CJ (OP:LZ2UU) 1.8 MHz 2nd world, Eu record
LZ2KTS won VE3BMV plaque for world high combined monoband score

CQ WPX SSB
1983 LZ2RF 1.8 MHz 1st in world
LZ9A (OP:LZ2CC) 21 MHz 4th in world
1984 LZ2KTS multi-single 5th world, 2nd Europe
LZ2BE 1.8 MHz 2nd world, 1st Eu

CQ WPX CW
1983 LZ2KTS multi-single 3rd in world
1984 LZ2KTS multi-single 4th world, 1st Europe
LZ2CJ (OP:LZ2SC) 1.8 MHz world record

CQ 160 m SSB
1984 LZ1KDP multi op 1st in world
LZ2CJ single op 1st in world

CQ 160 m CW
1984 LZ1KDP multi op 2nd in world
LZ2CJ multi op 3rd in world

WAEDC SSB
1984 LZ2KTS multi op 1st in Europe

IARU Radiosport
1982 LZ1KDP (OP:LZ2CJ) SSB 1st in world
1983 LZ2AB SSB 1st place in world
LZ2HE CW/SSB 1st in world
1984 LZ2KTS multi op 1st in world

LZ1KDP in RTTY contests:
CARTG 1980, 82, 83, 84
BARTG 1980, 83, 84
WAEDC 1980, 82, 83, 84 all 1st in world

(LZ2CJ)

Wally Stefanoff, LZ2CJ, is a well known Bulgarian contester and winner of numerous world high places in major international contests, including the world record in CQ WPX CW contest on 160 m band. He graduated from the Dental School of Sofia two and a half years ago and currently is practising dental medicine in his home town of Levski. Wally has been a ham since 1975 and got seriously involved in contesting in 1979, mainly on 160 m from his own station. He often operates all bands from the club station with the better antenna farm. He is 27 years old.

We welcome Wally to RADIOSPORTING and are looking forward to his "160 m in Europe" column.

(VE3BMV)

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WANTED!

MEMBERS FOR OUR CONTEST
AND AWARDS COMMITTEE
TO HELP WITH OUR NEW MONOBAND CONTESTS
AND AWARDS
HAVING AN APPLE II OR IBM PC-TYPE COMPUTER HELPS

****

The meaning of 33, 55 and 76

Cathy Hrischenko, VE3GJH

"33" This was the brainchild of Clara Reger, W2RUF, now a Silent Key. Clara became licensed in 1933. There were few YLs on the air then. They made regular skeds and developed warm friendships. Clara wanted some sort of signature that was a bit warmer, than 73 but not as gushy as 88. She told me she picked 33 for two reasons. The first being that it sounded good on CW. The second because she was licensed in 1933 and it would be a constant reminder of those friendships developed through Amateur Radio.

Later, the YLRL (the American Young Ladies Radio League) decided to adopt the use of 33 and gave it a definite meaning of "love, sealed with friendship, between one YL to another."

"55" Christel, DF1LV, says it means "Alles Gute" - "Good Luck".

"76" The Buckeye Belles (Ohio YL Club) use this in their bulletin. When I asked about it they told me this:

76 — God Bless You

Dear friend of mine, there is no way
In which I could address you,
With more sincerity of heart
Then just to say God bless you.

My words could wish that all your cares,
Would be a little lighter,
And I could send you greeting cards
To make your hours seem brighter.

My lips could call "good luck to you",
Or whisper "happy landing",
And I could promise you the depth
Of faithful understanding.

But I am sure no other thought
Or message would impress you,
As lovingly or lastingly
As asking God to bless you.

And so, I say God bless you, friend,
In every good endeavor.
And may this guiding grace be yours
Forever and forever.

76 to you!

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JUST IMAGINE

Robert T. Brodbeck
for the
Space Studies Institute (SSI)

Lunar mining bases, space stations, space manufacturing, solar power satellites, space settlements. Sound like the stuff of science fiction? Perhaps, but surprisingly, it is not! Several thousand people, today, are pursuing just these goals, planning to have a decent start by the turn of the century, if not before. The research is taking place NOW.

Imagine a system, a space-based mining and manufacturing system, that starts with investment in well-researched space technology. From this beginning it would manufacture products from space resources for use on Earth as well as in space, and thus earn profits to fuel continued growth of the system - in space.

There will be two principle products, one for sale to Earth markets, the second for use by space concerns. Both will satisfy long-standing needs, not being products easily outmoded by technological change.

For Earth the product will be electrical energy, supplied from geostationary orbit by solar power satellites. A solar power satellite (SPS) is a large array, or platform, of solar cells, collecting the strong and continuous sunlight of space, and beaming the energy via microwaves to an antenna farm on Earth. Various SPS designs can supply from 200 megawats to 5 gigawatts of electricity, amounts comparable to or larger than conventional power plants. The SPS concept was studied by NASA, the Department of Energy (DOE), and the National Research Council (NRC) in the late 70's. Their conclusion was that the SPS concept design was technically feasible, and would even be environmentally benign, but since their reference design assumed fabrication of all components on Earth for launching into orbit for assembly, the SPS idea was found to be an uneconomical proposition. Intriguingly, however, the moon's soil itself contains an abundance of aluminum, silicon and many other elements that would enable production of SPS components almost entirely in space, resulting in a much more economically sound concept. To many people, due to its soft environmental impact and use of sunlight, virtually an unlimited fuel, the SPS idea seems to make excellent sense as a major alternative to nuclear and fossil fuels for centralized power demands in the 21st Century.

The second product will be oxygen processed from lunar soil. After six manned missions to the moon we know that its soil contains about 40% oxygen, bonded to other elements. Oxygen is very important as space fuel, and very costly to bring up from the Earth's surface. Over 80% of the fuel weight that must be hauled up to low Earth orbit aboard the Space Shuttle, and then used to boost a satellite to geostationary orbit, is oxygen. This substance is growing in importance as world-wide space operations continue to expand. It is also necessary for production of atmosphere and water in manned spacecraft and stations.

Over three thousand people today are supporting the leading edge research needed to make these space products a reality. They are members of the Space Studies Institute (SSI). SSI is a non-profit corporation founded in 1977 to undertake the research and development necessary to open the resources of space, not only for the benefit of Earth, but also for the breakout of humanity into space and the resultant settlement of the space frontier. The founder and president of SSI is Dr. Gerard K. O'Neill, Professor of Physics at Princeton University, and author of "The High Frontier: Human Colonies In Space," which received the Phi Beta Kappa Science Book award in 1977. He is also author of "2081: A Hopeful View Of The Human Future."

SSI has been concentrating on the key technical elements within this mining/manufacturing system. First among them is the Mass Driver, a linear type of electric motor, much like an electromagnetic gun, that is capable of launching grapefruit-sized spheres of lunar soil from the surface of the moon to a processing plant in space. The technology for the Mass Driver made a great stride forward in 1984 as SSI tested its third model (MDIII). MDIII recreates the first half-meter of a 160-meter operational unit on the moon. The Mass Driver model took its payload carrier up to 1300 G's of acceleration in just one half-meter of length. This year it is being tested at its design goal of 1800 G's. This acceleration would be enough to bring the payload carrier in a lunar version to 5400 MPH, the speed necessary to escape the moon's gravity, over its 160 meter distance. After this exciting success with MDIII, SSI is now proceeding to design the full length machine.

The Space Studies Institute is also funding research on the chemical separation of lunar soil into its basic elements: pure metals, silicon and oxygen. In 1981 SSI awarded a substantial contract to Rockwell International to study the chemical steps involved. And now the results are being brought together in a final report which indicates that a processing plant in space could refine about 100 times its own weight in lunar soil each year. With this success now in hand, SSI will move the technology towards the pilot-plant stage.

In 1984 SSI initiated research on one of the key downstream elements of this space manufacturing system, the design of solar power satellites to be constructed from lunar materials. Unlike the SPS designs studied in the past, this SPS design is expected to be composed of more than 90% lunar materials, thus cutting costs from several angles, including much lower lunar launch costs and less stringent construction design. SSI had issued its request for proposals in late 1983, and in 1984 awarded the study contract to a firm in Seattle called Space Research Associates. SSI members across the country are eagerly awaiting word on some of the preliminary findings of the study.

With its successful research continuing, SSI intends to publish by the end of this decade, a consistent plan with the basic technology already having been researched, for the beginning of large-scale industry in space. A private investment venture, perhaps a consortium of countries or industries, on the scale of the Alaska pipeline

venture, could then run with the plan. And if events unfold more slowly, SSI will continue to refine the technologies of the system until it is low enough in risk for major investment capital.

The Space Studies Institute is a non-profit organization, one that neither receives nor solicits any government funds. Its research is supported solely by the generosity of its members. Although the research is technical, members of SSI come from all walks of life, young and old, from housewives, accountants and students. Most members are "Sustaining Members," fulfilling a $15 annual donation. Besides the rewarding feeling of supporting SSI's goals, Sustaining Members receive the bi-monthly SSI Update. This is the Institute's newsletter containing news of the ongoing research, interesting guest articles on space, and news about members' activities. Most of SSI's funding for research is received, however, from its Senior Associates, many of whom were Sustaining Members first. Senior Associates make a five year pledge of donations, usually $100 per year, thus providing a dependable flow of funding for research. All members are invited to attend the Princeton Conferences on Space Manufacturing, sponsored biennially by SSI at Princeton University, where members and scientists come from around the world to share ideas on space manufacturing, exploration, and settlement. The most recent conference was just held this May, 1985, and was simply fascinating, having covered topics from the latest in moon mining to space station designs.

To quote a fellow SSI member, Isaac Asimov, about the Institute, "Ultimately, the breakout of humanity to the greater world of our solar system can open material and energy resources millions of times greater than those of our fragile planet. I'd like you to join me in an adventure so that the breakout can become a reality." If you would like to find out how to join, send a post card with your address, or SASE envelope, for information to: Space Studies Institute, P.O. Box 82, Princeton, NJ 08540.

Imagine, as in the words of Gerard O'Neill, from his article, "Conquest of Space" (Omni 10/83), "When the scale of industry in space becomes large enough to demand the presence of thousands of people in high orbit for long periods, it will pay to devote some of the productivity to the building of space colonies for workers and their families. These colonies, in the form of spheres one mile in circumference, will rotate slowly to provide Earth-normal gravity for their residents. The space colonists will grow their own food and derive all the energy they need from the sea of constant sunlight. By the middle years of the next century the first beachhead in space will have grown to include thousands of such colonies, each with a language and a cultural heritage drawn from a nation of Earth. Travel between Earth and its colonies will be as common by then as international travel is today. It will be a happy development for our tired and fragile planet when humanity's drive toward production and conquest is redirected outward onto that high frontier." (SSI)

(I'm not sure if the SPS concept considered the impact of SPS system on the communication systems on earth. This huge amount of RF energy would probably overload the receivers used for the space communications. Wouldn't it be more effective to have solar stations on the high mountain peaks? IRSA will be glad to cooperate with SSI. VE3BMV)

QLF

A NEW AND INNOVATIVE TECHNIQUE IN CW CONTESTING

Mike Crabtree, ABØX

With the popularization of memory keyers fatigue from a long and demanding CW contest was decreased slightly. Operators were given just a few more seconds to log and dupe contacts in the midst of the contest. As a result scores and efficiency went up. However, there's a new technique gaining popularity in the Midwest that allows the operator two free hands the whole time he is sending.

This innovative new operating procedure is called QLF. QLF is quite simple; the operator sends and activates the keyer with his bare left foot. Hence the new Q signal - QLF. However, take note of the fact that the left foot is used for the sending. The right foot should remain shoe covered and free to activate the foot switch.

QLF obviously requires some coordination and motor skill, but it is surprisingly easy to learn. The iambic squeeze paddle is recommended for the beginner. Some QLFers even admit to using straight keys with their left foot until their muscles are built up and used to the rapid movement needed to send high speed CW. The paddle should be gripped between the big toe and the index toe. A surprising amount of dexterity exists between these toes if the sender will bend or scrunch the toes together.

Also, the memory keyer should be placed on the floor because the big toe is used to punch the buttons on the keyer and to activate the memories.

The QLF technique requires lots of practice, but once mastered, the QLF operator will have more time to log and dupe accurately, while experiencing less general fatigue during a long contest. In fact, the contester of the future, with his personal computer, can type in the contacts while he sends with his left foot.

In non-contest situations some QLFers have even started sending "QLF" after their call to help other QLFers identify them. Certainly, QLF should be added to the International Q-Signals List.

The only real disadvantages to QLF are that the heat must be turned up a little higher in the shack during the Winter. (It is hard to send with a numb foot.) Also, in multi-op situations, personal hygiene becomes a more important consideration when choosing operators for the team.

If you want to improve your speed, rate and accuracy in the contests, you should seriously consider learning the QLF technique. Join the wave of the future! Several local DX club members have been sending with their left foot for years. (ABØX)

DEVELOPING THE "CRYSTAL BALL"

Bell Northern Research has awarded an additional $40,000 Cdn to the University of Alberta for fiber optics research. This brings BNR's total "investment" to $80,000. BNR and the U of A are attempting to establish an information base on which to determine future directions and applications of technology for the next generation of optical communications systems.

Current fiber optic systems can send in excess of 10,000 simultaneous telephone conversations over a single fiber.

(Canadian Electronics Engineering)

1985 HAMVENTION AMSAT FORUM

Mike Spenuk, VE3JTQ

As well as the DX and Contest forums, I managed to get to the Amsat forum on Sunday. This was actually the third satellite forum of the weekend. Introductory comments were given by Dr. John Champa, K8OCL. He stated that more satellites are now possible since the membership and activity of the Amsat group is growing at a steady rate. Amsat had a net growth of 36 per cent last year. "Very exciting times are ahead with Amateur Radio really 'just entering' the space age. And with the current sunspot numbers being the lowest and the current low period predicted to be the longest yet, the amateur space program is expected to see some rapid growth."

The first speaker of this forum was Eric Rosenberg, WA6YBT. Eric gave a description of Oscar 10 and some tips on how to become involved in satellite work. Oscar 10, built by volunteers from Europe, Asia, and the United States and launched by the European Space Agency on June 16, 1983 from French Guiana, has caused a great increase in activity and enthusiasm towards the amateur satellite program. It is the first of the phase III satellites; the first amateur satellite with "semi-geostationary" highly elliptical orbit.

Eric stated that he wasn't too familiar with the technical aspects of the satellite but he was able to provide some data. The satellite utilizes magni-torquing for attitude control. The orbit of the satellite is divided into 256 sectors called Mean Apogee Counts with perigee being 1/256 and apogee 128/256. For Oscar 10, perigee altitude is about 1,500 km and apogee altitude is about 35,500 km. Currently, one orbit takes about 11 hours to complete with access time of approximately 7 hours 45 minutes.

The majority of operations through Oscar 10 occurs via Mode B (downlink on 145 MHz and uplink on 435 MHz) mainly because a Mode L (downlink on 436 MHz and uplink on 1269 MHz) station is more difficult to construct by the "average" ham. Modes currently used are CW, SSB, SSTV, Amtor, and Packet. SSB is the most popular mode. There is no FM activity - really it is not allowed - because it requires too much power and spectrum from the satellite for a single signal. As with the previous satellites, Oscar 10 carries a beacon transmitter which provides the Command stations in Europe, U.S., and Asia - as well as those interested - with the real time status of the satellite. According to Eric, this telemetry information is transmitted in three ways on 145.810 MHz (436.04 MHz on Mode L): 400 baud FSK, CW on the hour and the half hour, and RTTY on the quarter hour. There is also an engineering beacon at 145.987 MHz (436.02 MHz on Mode L). From information that I have recently obtained, the general plan is to have the General Beacons carry Morse code to provide updated messages and selected telemetry channels and the Engineering Beacons to use 400 baud FSK/PCM.

The Mode B transponder receives your signal between 435.025 to 435.160 MHz and retransmits on the downlink band of 145.840 to 145.960 MHz. But the signals are inverted. I.e., if you transmit upper sideband you will hear yourself on lower sideband on the downlink.

What do I need to work Oscar 10?

Well, what you don't need is "big" antennas or "expensive" radios. For receive, you need a 2 meter CW/SSB transceiver or converter, a GaAs FET or MOSFET preamp and a helix or crossed yagi. A five turn helix (about 9 dB gain) or a 4 x 4 yagi (about 7 dB gain) should be sufficient. Right-handed circular polarization is sufficient and having the ability to shift to left-handed circular polarization is advantageous. Azimuth and elevation control of the antenna is required.

For transmission a 70 cm CW/SSB transmitter (transceiver or transverter) capable of 10 watts output is the minimum. The actual power necessary will depend on the type of antenna used, but running more than 1,000 watts ERP should be avoided. Theoretically, 10 watts and a 24 turn helix or a 8 x 8 crossed yagi is sufficient. These antennas can be used to receive Mode L, provided you have the receive capability.

Problems you will encounter.

Not to scare anyone interested in satellite work away, these problems are pointed out so that you will know how to watch out for them. The first problem to overcome is the inversion that occurs with the transponders. Once you accept this "phenomenon", finding your own signal will be much easier.

When you do find your signal on the downlink you will discover the next problem: echos. There is about a 250 mS delay due to the path length. This is just enough to get your mind out of sync with your mouth if you are listening to yourself. A third problem that may or may not be present is spin modulation.

Some signal "degradation" may occur due to the spinning motion of the satellite. Also due to the motion of the satellite is doppler shift. For those not familiar with doppler shifting, it is really quite simple. You probably experienced it if you ever listened to a train whistle at a crossing. When the train is approaching you, the whistle will appear at one frequency (assuming constant motion), as the train passes by and then away from you the whistle frequency will appear to decrease and then be at a lower frequency. This is caused by the motion of the train. In the same way the transmit frequency of the satellite will appear to change and you will have to compensate by "tracking" with your VFO. The shift can be as much as 6 KHz.

Another problem that occurs with the satellite is that since it has only a fixed amount of power available, your "high power" signal will cause the satellite to become deaf. This is most noticeable when a DX station comes on. As more and more stations call, the signals will get weaker and weaker. You can only compensate for this situation with a good receive system. If you try increasing your transmit signal you will be adding to the problem.

For more information on the Oscar 10 satellite try listening to the Amsat Nets: Sunday 1800 UTC on 21.280 MHz, 1900 UTC on 14.282 MHz, Wednesday 0200 UTC on 3.855 MHz for the East Coast, 0300 UTC for the Central, and 0400 UTC for the West Coast. Amsat

information bulletins are also transmitted via Oscar 10 Saturday and Sunday mornings. Schedules are also published in the magazines.

PROJECT "RACAR"

Hans Van De Groenendaal, ZS6AKV, was the next speaker at the forum. He described a problem that most clubs are now too familiar with: lethargy among the members. Hans and other members of his club came up with a unique solution to the problem. It provided interest, a learning experience, and most importantly, FUN! The solution involved a soda pop bottle, a weather balloon and some "ham ingenuity."

The project was given the name "BACAR" which stands for Balloon Carrying Amateur Radio. The project was a simple repeater which was carried high into the air with a weather balloon filled with, not helium, but hydrogen because it could be obtained less expensively. Alkaline cells were used to power the beacon. Also used was a small parachute so that the pop bottle and all the internal electronics would not return to the earth at a destructive speed.

The project was broken down into parts so that many persons were involved in the construction which was initially done on breadboards. After numerous tests the pc boards were built for the final version.

Once the constructing stage was completed, and permission for the launch obtained, the balloon was launched. Tracking began with over half of the 600 active amateurs in the area taking part by calling in bearing directions to the BACAR Command Center. The actual coverage of the repeater was 3 to 400 miles.

Hans stated that only about half a dozen members used to attend the club meetings, but now they have a "full house." This project has spurred interest in the amateur satellite program and the club members are working on even more exciting projects now.

GATEWAY OPERATIONS

So you are active on Oscar 10, but how do you get your neighboring hams interested? Gateway operations, that's how. Don Knollinger, WB8ZTV, and Dave Kifer, N8ETY, discussed what gateway operations are and how to set one up.

Gateways are quite simple and they are a way in which to get many individuals, who otherwise wouldn't be able, acquainted with Oscar 10. The requirements are a station capable of working the satellites and a 2m repeater (or 220 or 450).

Dave has established a gateway on a small, not too popular, Cleveland repeater. "It works both ways," he says. Getting people interested in satellites and getting people interested in the repeater. It's a great way to attract 'new blood'."

A gateway operation is run every two weeks. It appears to be more than enough with one a month probably sufficient. Most of the time, attracting someone to sit and work the repeater group via the satellite is not difficult. Some operators have been known to stay for two or more hours at a time.

SPACE SHUTTLE MISSIONS

Bill Tynan, W3XO, spoke about the next "ham in space" mission. It is anticipated that shuttle mission 51F with a scheduled launched date of July 15, 1985, will carry two hams into space. They are, Drs. Tony England, WOORE and John Bartoe, W4NYZ. Tony is a geologist by profession and John works at the Naval Research Lab in Washington, D.C.

It is hoped that the two astronauts will have time to operate 2 way FM on the 2 meter band, and also SSTV on 2m FM. The Motorola 2m handheld and the handheld window antenna will be used again as they were by Owen, W5LFL on STS-9. Space to Earth transmissions will be heard on 145.55 MHz and the following frequencies are suggested for Earth to Space transmissions: 144.91, 144.95, 144.97, 145.03, 145.09, 145.51, 145.57, 145.63, 145.69 MHz. Less frequencies are being utilized this trip because it is thought that in the last expedition the automatic noise squelch was shutting off the audio because too many signals on the band were all mixing together and appearing as the "noise floor". It is hoped that by spreading out the stations this problem won't reoccur.

The Slow Scan TV capability is being made possible mainly through the efforts of the group at the Johnson Space Center who are repackaging the Robot model 1200C converter. Actually there are only limited modifications being made to the converter. Namely, software mods - all conversion is microprocessor based so that the system can be reprogrammed easily, and the case has been replaced with a carry-on aluminum one.

The transmission sequence that will be used for SSTV has been developed so that all (99 %) existing SSTV ground gear can be used. The transmission sequence is 80 seconds long. It consists of a CW ID followed by 1 frame of robot color (36 sec), 1 frame of standard color (12 sec), and the RGB sequence -2 frames red, 1 frame green, 1 frame blue (total time 32 sec). The standard color transmission is compatible with black & white. The Robot color is Hi-resolution with 256 x 240 lines for a total of 61,440 pixels).

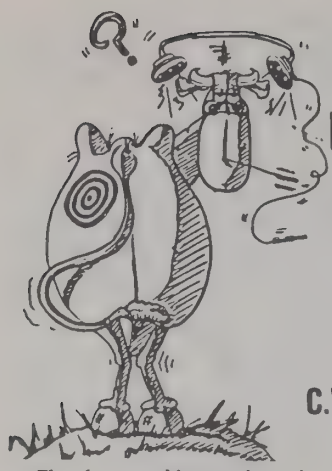
Material that can be sent comes from three sources. Stored mission patch, views from the dedicated Panasonic camera (donated by Panasonic), and views from the shuttle video buss (utilizing freeze-frame circuitry).

Finally, W3XO suggests that this shuttle mission will make an excellent opportunity for a public relations blitz. Especially using the TV pictures!

THE GET-AWAY SPECIAL PROGRAM

The last speaker in the 1985 Amsat forum was Jeff King, WB8WKA. Jeff spoke about the NASA Get-Away Special (GAS) Program. The purpose of the program was to "make space available to the general public." The GAS cans -because they look like a garbage can- are 2.5 or 5 cu. ft. in size. The user can put his experiment inside. Interface connections are located on the bottom of the can. The experiments are classed as secondary payloads and are mostly self-sufficient with little "outside" help. The cans are located in the cargo bay and connected via a buss line to a numeric key pad inside the shuttle for control. It costs about $5,000 for the small can and $10,000 for the large can. The only unfortunate thing with these cans is that the free rides into space are over.

That raps up the Amsat forum for 1985. It sure sounds like lots of interesting things are going on with this group. Satellite work is definitely something to try if you are getting a little tired with contesting and DXing. But why not do both? There's lots of time between contests and dx pile-ups to play around with the satellites. (VE3JTQ)



HERE'S THE BEEF

C.W. Bug, NØ/FØOL

The ham radio market is an interesting one. On the one hand there are the inquiring customers - interested hams searching to buy an S-line for a reasonable price. On the other hand are the manufacturers and dealers wanting to make a modest profit.

Not all hams buy critically, with perhaps those who started 'way back and were involved in the home brewing being more exacting. Some still might drive 100 miles to save $10 off the price, while spending $20 on the gasoline. And then there are those who don't mind paying close to the list price for the gear, knowing that they are dealing with a reputable dealer, who stands behind the product he sells. Perhaps the best customers are those the new hams who are discovering the wonderful world of ham radio and who are not too technically minded. They may make more money and don't mind spending it on a good radio.

The only force that can keep the prices at a reasonable level is the competition. We see examples of the state run economies - fixed prices and shortage of everything. The free enterprise system and competition is the best thing for the consumer. It keeps the quality up and prices down.

Many amateur gear and antenna manufacturers started in the garage or basement. They came up with a good product and the sales propelled them to a respectable company size. The natural thing which follows is an expansion into markets other than ham radio. When they start dealing with government or large companies, they usually find this to be a better market place with less hassle than ham radio alone. As they gain strength they gradually lose interest in the hams and pay more attention to their bigger customers. They may not keep up with technology. Others beat them in the price/performance game. Is there any loyalty or feeling for the hams who helped to get the company off the ground? I guess it depends on who is running the company. If the chief is a ham deep inside, he might stick with difficult ham radio business. If all he wants is the lucrative profit, then he will gradually go the way of "lesser resistance." Can we blame him? Probably not.

On the other hand we have seen companies which were established and doing well in other areas of business enter into the ham radio market with good equipment and they seem to do well. The key is to have a good product at a reasonable price, which means good designers and effective manufacturing. One thing is clear. Money can be made even with beginning hams if the product is good and the price is right. In order to stay abreast and remain competitive the manufacturers have to keep up with new technology and carefully follow the market requirements.

On the dealer side, there are the volume merchants who sell at rock bottom prices. These don't usually have a service department and the transaction generally ends after the sale has been made. These can include the big mail order operations. On the other end of the scale there are the dealers who have super personnel and service departments ready to rebuild and redesign your station. They might charge a bit more. And then there is a whole range of dealers in between.

If you are the type that can fix the stuff, you will seek to buy at rock bottom prices. If you want to establish a good relationship with the dealer, you will probably look for the one closest to you with a good staff. This will allow you to trade the rigs for newer models, return the lemons, or try the new radio for a day or two before you buy it. It is interesting to see that some dealers and manufacturers are crying that there is no money in the ham radio market while others are doing so well and prospering. I guess it all boils down to the fact of how well you know your business and how quickly you can adjust to the changes. The good dealers and manufacturers will also follow the trends and happenings on the bands and in the magazines. They support good things that bring them gains in the long run. If you have good or bad news or experiences with your equipment, let it be known. It will help other hams, conscious manufacturers and dealers, and will bring to light the shady operators.

Now onto another subject, the 160 m DX window, the part of the band between 1.825 and 1.830 kHz which was "allocated" by the long standing gentleman's agreement for DX stations, especially outside of North America, to transmit. The North American stations would only listen there and transmit split frequency - somewhere else. This was a very important development in order to allow us to work the very weak DX signals on the band clobbered with 40 dB over nine continental signals. Otherwise one would not be able to hear the weak signals in between those killer signals. The propagation on 160 m band is such that one can hear everything from here to the ocean. There is no "skip" that would make a good many stations inaudible. A similar situation applies to 80 m band.

In the heat of contest some newborn 160 m operator discovers the "clear" frequency within the DX window, parks his signal there and voila, gets the pileup. Some try to tell him to get off while others may try to work him.

NORTH AMERICANS, PLEASE DO NOT TRANSMIT IN THE DX WINDOW!!! Please respect the long standing gentleman's agreement. The 160 m band is called the gentleman's band. If you are new and just discovered the band, please respect the established practices. They are there for all of us! CQ Magazine has included in the rules for their 160 m contests, a stipulation that contacts made "transceive" in the DX window will be canceled and that the station can be disqualified. So calibrate your receiver dial. Do not transmit there even if it sounds dead to you. If you find the inexperienced DX station may be trying to operate in the window transceive, tell him to listen down or up and work him split! The rest of the hams will be grateful to you and you will be respected. Otherwise, you might end up on the Alligator Shame Roll.

Have you got any beefs? Send it over to me. I'll beef about it for you. 73 Clara, NØ/FØOL

NEWMATCH: Anatomy of a Dupe Checker

Bob Patten, N4BP

NEWMATCH will dupe check, sort and send to your printer up to 2200 calls. Worst case conditions are one and one half seconds to find a dupe and two minutes and twenty seconds to sort 2200 calls. These results were obtained by using the "TEST" file produced by "Randcall" in listing #5. System requirements are a 32K TRS-80C computer, one disk drive and a printer.

Dupe checking is done in BASIC. Speed is increased tenfold by storing calls in different arrays for each call area, so only the call area of interest need be searched. Each array holds up to 220 calls. Speed for sorting is gained by using a machine language sort written by Mark Goodwin and published in "80-U.S. Micro" for December, 1982. While giving credit, the scroll protect routine, used for keeping a heading on the top five lines of the screen, was written by Charles Rosland and published in "Rainbow" for November, 1982.

To use the main program, you must first create the machine language program, "NEWMATCH/BIN" using "MLLOAD" in listing #3. Simply key in "MLLOAD" and RUN it. A few seconds later, the required program will be on disk. Source code listings are provided in listings #1 and #2. NEWMATCH/BIN is simply these two routined and combined; "SCROLLPR" starts at &H7F00 and "CCSORT" at &H7F63.

Next, LOAD and RUN "NEWMATCH". After some whirring and clicking (the program loads and runs itself after you enter RUN!!), the title and menu are displayed on a checkerboard background. With "SCROLLPR" in place in RAM, this heading will always remain on the screen. In the green area of the screen, you will be prompted for a call. If the entry is not a system command and does not contain a number (which all legitimate calls do), an error message will be displayed. If a call is entered, you will hear a short, high pitched tone to indicate the call has been accepted into the array. If you're in progress and enter a dupe, you will get a longer, low pitched tone and be informed of the duplicate.

Allowable system commands are listed in the heading and function as follows:

LOAD - Loads a band file from disk that was previously saved. You must enter the name exactly as it was saved or the program will crash. When loaded, the name of the file appears in the heading.

SAVE - Saves a band file to disk after you specify a name for it (don't forget the name). The file name will disappear from the heading and the arrays will be cleared.

PRINT - You are given the option "sCREEN OR pRINTER." If you select screen, all calls in the arrays will scroll by rather rapidly. The screen listing is used just to get an idea of what's in the array and does give a QSO total at the end. If you select printer, first a heading is printed (substitute your call for mine in line 53 of NEWMATCH), next the band file name, and then a full listing of all calls in the arrays by call area and in five columns. The QSO total is printed at the end.

SORT - Sorts the arrays alphabetically in ascending order in each exit the program in this manner or the computer will lock up.

NEWMATCH is uncommented and all unnecessary spaces have been removed in order to free the maximum amount of memory for the arrays. The major routines will therefore be pointed out. A commented, easy to read version was written but would only accommodate 1200 calls.

Comments for the program listing:

LINE#	REMARK
0	Clears graphics memory for arrays.
1	Loads machine language routines.
2	Define variables and M.L. exec addresses.
3	Dimensions arrays for calls.
4	Activates SCROLLPR and prints heading.
5	Get call or system command.
6	See if it's a system command.
7	Find first number in call to determine which array to use.
9	Tell user not a legitimate call.
10	Go to search routine for proper array.
11	Remove "REM" for duping in "real time".
12	Ditto
13	Go put call in proper array.
14	Build a numeric array to satisfy CCSORT.
15-24	Start of sort routine. Find location of array for CCSORT.
25	End of sort routine.
26-28	Actual sort takes place and sounds a tone as each array is sorted.
30-48	Even numbered lines add calls to arrays.
31-47	Odd numbered lines check arrays for dupes.
49	Reports of dupe.
50	Start of print routine; select device.
52	Set up five column format for printer.
53	Print a heading on printer.
54-63	Print contents of arrays to screen or printer.
64	Report total number of QSO's.
65	Start of routine to LOAD and band files; get name for file.
66	Open the file.
67	Input number of QSO's in each array.
68-77	Input contents of arrays to band file.
78	Close the file; put its name in the screen heading.
79	Start of routine to SAVE a band file; get name of file.
81	Write number of QSOs in each array.
82-91	Write contents of arrays to band file.
92	Close the file; disable SCROLLPR, RUN the program (clear variables).
93	Print the heading.
94	Disable SCROLLPR to prepare for END.

Again, any questions, send an SASE; $5.00 for a cassette with the programs needed to make it all work.
(Bob Patten, N4BP
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LISTING 1 "SCROLLPR/SRC"

```
00100 *SCROLLPR BY CHARLES ROSLAND
00110 *RAINBOW NOV. 82 P.46
00120          ORG     $7F00
00130 START    LDX     $0168    RAM HOOK FOR OUTCHR
00140          STX     <OLDVEC,PCR      SAVE OLD VECTOR
00150          LEAX    <NEWVEC,PCR
00160          STX     $0168    INSTALL NEW VECTOR
00170          LDA     #$39     PUT RTS AT START
00180          STA     START,PCR        FOR SAFETY'S SAKE
00190          RTS
00200 OLDVEC   FDB     $5555    OLD VECTOR SAVE LOCATION
00210 NUMLIN   FCB     5        NUMBER OF PROTECTED LINES
00220 NEWVEC   PSHS    A,B,X,CC         SAVE REGISTERS
00230          TST     <$6F     OUTPUT UNIT (0=SCREEN)
00240          BNE     RETURN   IF NOT SCREEN, RETURN
00250          LDX     <$88     CURSOR LOCATION
00260          CMPX    #$05E0   ON LAST LINE?
00270          BLT     RETURN   NO, RETURN
00280          CMPA    #$0D     <CR>?
00290          BEQ     SCROLL   YES, GO SCROLL
00300          CMPX    #$05FF   AT END OF SCREEN?
00310          BEQ     SCROLL   YES, GO SCROLL
00320 RETURN   PULS    A,B,X,CC         RESTORE REGISTERS
00330          JMP     [OLDVEC,PCR]     RETURN TO OLD VECTOR
00340 SCROLL   LDA     NUMLIN,PCR       # OF PROTECTED LINES
00350          LDB     #32      CHARACTERS / LINE
00360          MUL              COMPUTE SCREEN START
00370          ADDD    #$0400   FOR SCROLL
00380          LEAX    <RET,PCR         RETURN ADDRESS
00390          PSHS    X        PUT ON STACK
00400          TFR     D,X      X=SCREEN START
00410          PSHS    A,B,X    PUSH REGISTERS SCROLL WILL PULL
00420          JMP     $A34E    CALL SCROLL IN ROM
00430 RET      DEC     <$89     DECREMENT CURSOR POINTER
00440          BRA     RETURN
00450          END     START
```

LISTING 2 "CCSORT/SRC"

```
00100 *80 US JOURNAL DEC 82 P.63
00110          ORG     $7FFF-$9C
00120          SETDP   $7F
00130 START    LDA     #$7F     * NEW DP VALUE
00140          EXG     A,DP     * A = OLD, DP = NEW
00150          STA     <OLD     * SAVE OLD DP
00160 ST1      CLR     <NUM     * CLEAR SORT FLAG
00170          LDD     <V1      * D = # ELEMENTS - 1
00180          STD     <LEN     * LOAD VARIABLE
00190          LDD     <V2      * D = VARPTR(A$(1))
00200          STD     <STP     * LOAD VARIABLE
00210          LDD     <V3      * D = VARPTR(A(1))
00220          STD     <INT     * LOAD VARIABLE
00230 ST2      LDX     <STP     * X = STRING POINTER
00240          LDA     ,X       * A = LEN(STRING1)
00250          STA     <LEN1    * SAVE IT
00260          LDD     2,X      * D = STRING1 POS
00270          TFR     D,Y      * PUT IT IN Y
00280          LDA     5,X      * A = LEN(STRING2)
00290          STA     <LEN2    * SAVE IT
00300          LDD     7,X      * D = STRING2 POS
00310          TFR     D,X      * PUT IT IN X
00320          EXG     X,Y      * EXCHANGE X AND Y
00330          LDA     <LEN2    * A = LEN(STRING2)
00340          BEQ     ST5      * IF A = 0 JUMP
00350          LDA     <LEN1    * A = LEN(STRING1)
00360          BEQ     NOSWAP   * IF A = 0 JUMP
00370          BRA     ST3      * JUMP
00380 ST5      LDA     <LEN1    * A = LEN(STRING1)
00390          BEQ     NOSWAP   * IF A = 0 JUMP
00400          BRA     SWAP     * JUMP
00410 ST3      LDA     ,X+      * PUT CHAR IN A
00420          CMPA    ,Y+      * COMPARE STRINGS
00430          BEQ     ST4      * IF = JUMP
00440          BCS     NOSWAP   * IF > JUMP
00450 SWAP     LDX     <STP     * X = STRING POINTER
00460          BSR     MOVE     * SWITCH STRINGS
00470          LDX     <INT     * X = INDEX POINTER
00480          BSR     MOVE     * SWITCH INDEX
00490          LDA     #1       * A = 1
00500          STA     <NUM     * SET SORT FLAG
00510 NOSWAP   LDD     #5       * D = 5
00520          ADDD    <STP     * + STRING POINT
00530          STD     <STP     * SAVE IT
00540          LDD     #5       * D = 5
00550          ADDD    <INT     * + INDEX POINT
00560          STD     <INT     * SAVE IT
00570          LDX     <LEN     * X = # ELEMENTS
00580          LEAX    -1,X     * DECREMENT IT
00590          STX     <LEN     * SAVE IT
00600          BNE     ST2      * IF X <> 0 JUMP
00610          LDA     <NUM     * A = SORT FLAG
00620          BNE     ST1      * IF A <> 0 JUMP
00630          LDA     <OLD     * A = OLD DP
00640          TFR     A,DP     * SET DP
00650          RTS              * RETURN TO BASIC
00660 ST4      DEC     <LEN2    * DEC STRING2 LEN
00670          BEQ     SW5      * IF = 0 JUMP
00680          DEC     <LEN1    * DEC STRING1 LEN
00690          BEQ     NOSWAP   * IF = 0 JUMP
00700          BRA     ST3      * JUMP
00710 SW5      DEC     <LEN1    * DEC STRING1 LEN
00720          BEQ     NOSWAP   * IF = 0 JUMP
00730          BRA     SWAP     * JUMP
00740 MOVE     LDB     #5       * B = COUNT
00750          STB     <CNT     * SAVE IT
00760 MO1      LDA     5,X      * SWITCH
00770          LDB     ,X       * LOCATIONS
00780          STB     5,X      * POINTED
00790          STA     ,X+      * TO BY X
00800          DEC     <CNT     * DECREMENT COUNT
00810          BNE     MO1      * IF CNT <> 0 JUMP
00820          RTS              * RETURN
00830 V1       FDB     0
00840 V2       FDB     0
00850 V3       FDB     0
00860 LEN      FDB     0
00870 STP      FDB     0
00880 INT      FDB     0
00890 CNT      FCB     0
00900 NUM      FCB     0
00910 LEN1     FCB     0
00920 LEN2     FCB     0
00930 OLD      FCB     0
00940          END     START
```

LISTING 3 (Con't.) "MLLOAD"

```
60 DATA BE,01,68,AF,8C,0C,30,8C
70 DATA 0C,BF,01,68,86,39,A7,8C
80 DATA EF,39,55,55,05,34,17,0D
90 DATA 6F,26,10,9E,88,8C,05,E0
100 DATA 2D,09,81,0D,27,0B,8C,05
110 DATA FF,27,06,35,17,6E,9D,FF
120 DATA E1,A6,8C,E0,C6,20,3D,C3
130 DATA 04,00,30,8C,09,34,10,1F
140 DATA 01,34,16,7E,A3,4E,0A,89
150 DATA 20,E1,FF,00,FF,00,FF,00
160 DATA FF,00,FF,00,FF,00,FF,00
170 DATA FF,00,FF,00,FF,00,FF,00
180 DATA FF,00,FF,86,7F,1E,8B,97
190 DATA FF,0F,FC,DC,EF,DD,F5,DC
200 DATA F1,DD,F7,DC,F3,DD,F9,9E
210 DATA F7,A6,84,97,FD,EC,02,1F
220 DATA 02,A6,05,97,FE,EC,07,1F
230 DATA 01,1E,12,96,FE,27,06,96
240 DATA FD,27,1C,20,06,96,FD,27
250 DATA 16,20,08,A6,80,A1,A0,27
260 DATA 2D,25,0C,9E,F7,8D,37,9E
270 DATA F9,8D,33,86,01,97,FC,CC
280 DATA 00,05,D3,F7,DD,F7,CC,00
290 DATA 05,D3,F9,DD,F9,9E,F5,30
300 DATA 1F,9F,F5,26,B2,96,FC,26
310 DATA A0,96,FF,1F,8B,39,0A,FE
320 DATA 27,06,0A,FD,27,D9,20,C3
330 DATA 0A,FD,27,D3,20,C5,C6,05
340 DATA D7,FB,A6,05,E6,84,E7,05
350 DATA A7,80,0A,FB,26,F4,39,00
360 DATA 00,00,00,00,00,00,00,00
370 DATA 00,00,00,00,00,00,00,00
```

LISTING 3 "MLLOAD"

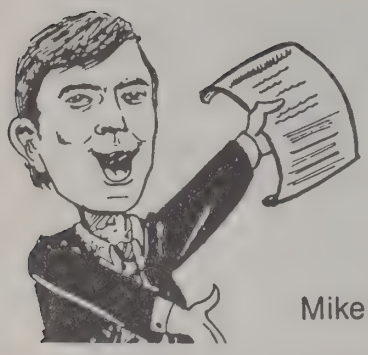
```
10 CLEAR 200,&H7EFF
20 FOR ML=&H7F00 TO &H7FFF
30 READ DT$:POKE ML,VAL("&H"+DT$):NEXT ML
40 SAVEM"NEWMATCH",&H7F00,&H7FFF,&H7F00
50 END
```

LISTING 4 "NEWMATCH"

```
0 IFPEEK(&HE00)<>0THENPOKE25,14:POKE26,1:POKE3584,0:LOAD"NEWMATCH",R
1 CLEAR11750,&H7EFF:LOADM"NEWMATCH"
2 POKE65495,0:N=220:L$=STRING$(2,13):DEFUSR0=&H7F63:DEFUSR1=&H7F00
3 DIMN(N),A$(N),B$(N),C$(N),D$(N),E$(N),F$(N),G$(N),H$(N),I$(N),J$(N),S1,S2,S3
4 Y=USR1(Y):GOSUB93:PRINT@192,"";
5 LINEINPUT"CALL     :     ";Z$
6 IFZ$=""THEN5ELSEIFZ$="LOAD"THEN65ELSEIFZ$="SAVE"THEN79ELSEIFZ$="PRINT"THEN50EL
SEIFZ$="SORT"THEN14ELSEIFZ$="END"THENGOSUB94:END
7 FORW=1TOLEN(Z$):A1=ASC(MID$(Z$,W,1))
8 IFA1>47ANDA1<58THEN10
9 NEXTW:PRINTZ$;" HAS NO NUMBER":SOUND1,20:GOTO5
10 ON58-A1 GOSUB45,43,41,39,37,35,33,31,29,47
11 SOUND100,1:'PRINT"WORK HIM?";
12 'YN$=INKEY$:IFYN$=""THEN12ELSEIFYN$="N"THENPRINT" NO":GOTO5ELSEIFYN$<>"Y"THEN
12
13 ON58-A1 GOSUB46,44,42,40,38,36,34,32,30,48:GOTO5
14 FORS=1TON:N(S)=S:NEXT:S3=VARPTR(N(1)):POKE&H7FF3,INT(S3/256):POKE&H7FF4,S3-IN
T(S3/256)*256
15 IFA>1THENS1=A-1:S2=VARPTR(A$(1)):GOSUB26
16 IFB>1THENS1=B-1:S2=VARPTR(B$(1)):GOSUB26
17 IFC>1THENS1=C-1:S2=VARPTR(C$(1)):GOSUB26
18 IFD>1THENS1=D-1:S2=VARPTR(D$(1)):GOSUB26
19 IFE>1THENS1=E-1:S2=VARPTR(E$(1)):GOSUB26
20 IFF>1THENS1=F-1:S2=VARPTR(F$(1)):GOSUB26
21 IFG>1THENS1=G-1:S2=VARPTR(G$(1)):GOSUB26
22 IFH>1THENS1=H-1:S2=VARPTR(H$(1)):GOSUB26
23 IFI>1THENS1=I-1:S2=VARPTR(I$(1)):GOSUB26
24 IFJ>1THENS1=J-1:S2=VARPTR(J$(1)):GOSUB26
25 PRINT"SORTED...":PRINT:GOTO5
26 POKE&H7FEF,INT(S1/256):POKE&H7FF0,S1-INT(S1/256)*256
27 POKE&H7FF1,INT(S2/256):POKE&H7FF2,S2-INT(S2/256)*256
28 S=USR0(S):PLAY"T9A":RETURN
29 FORX=1TOA:IFZ$=A$(X)THEN49ELSENEXT:RETURN
30 A=A+1:A$(A)=Z$:RETURN
31 FORX=1TOB:IFZ$=B$(X)THEN49ELSENEXT:RETURN
32 B=B+1:B$(B)=Z$:RETURN
33 FORX=1TOC:IFZ$=C$(X)THEN49ELSENEXT:RETURN
34 C=C+1:C$(C)=Z$:RETURN
35 FORX=1TOD:IFZ$=D$(X)THEN49ELSENEXT:RETURN
36 D=D+1:D$(D)=Z$:RETURN
37 FORX=1TOE:IFZ$=E$(X)THEN49ELSENEXT:RETURN
38 E=E+1:E$(E)=Z$:RETURN
39 FORX=1TOF:IFZ$=F$(X)THEN49ELSENEXT:RETURN
40 F=F+1:F$(F)=Z$:RETURN
41 FORX=1TOG:IFZ$=G$(X)THEN49ELSENEXT:RETURN
42 G=G+1:G$(G)=Z$:RETURN
43 FORX=1TOH:IFZ$=H$(X)THEN49ELSENEXT:RETURN
44 H=H+1:H$(H)=Z$:RETURN
45 FORX=1TOI:IFZ$=I$(X)THEN49ELSENEXT:RETURN
46 I=I+1:I$(I)=Z$:RETURN
47 FORX=1TOJ:IFZ$=J$(X)THEN49ELSENEXT:RETURN
48 J=J+1:J$(J)=Z$:RETURN
49 PRINT" ";Z$;" IS A DUPE":SOUND1,25:GOTO5
50 PRINT:PRINT"sCREEN OR pRINTER?"
51 Q$=INKEY$:IFQ$="S"THENDV=0:GOTO54ELSEIFQ$="P"THENDV=-2ELSE51
52 SLOW:BAUD(9600):POKE&H9B,80
53 'PRINT#-2,CHR$(27)"W1";STRING$(16," ");F$;L$;STRING$(16," ");"N 4 B P";L$;CHR$
(27)"W0"
54 FORP=1TOA:PRINT#DV,A$(P),:NEXT:PRINT#DV,L$
55 FORP=1TOB:PRINT#DV,B$(P),:NEXT:PRINT#DV,L$
56 FORP=1TOC:PRINT#DV,C$(P),:NEXT:PRINT#DV,L$
57 FORP=1TOD:PRINT#DV,D$(P),:NEXT:PRINT#DV,L$
58 FORP=1TOE:PRINT#DV,E$(P),:NEXT:PRINT#DV,L$
59 FORP=1TOF:PRINT#DV,F$(P),:NEXT:PRINT#DV,L$
60 FORP=1TOG:PRINT#DV,G$(P),:NEXT:PRINT#DV,L$
61 FORP=1TOH:PRINT#DV,H$(P),:NEXT:PRINT#DV,L$
62 FORP=1TOI:PRINT#DV,I$(P),:NEXT:PRINT#DV,L$
63 FORP=1TOJ:PRINT#DV,J$(P),:NEXT:PRINT#DV,L$
64 PRINT#DV,A+B+C+D+E+F+G+H+I+J;" QSO'S":FAST:GOTO5
65 GOSUB93:PRINT@260,"FILE NAME ?":PRINT@300,"";:LINEINPUT"";F$
66 POKE65494,0:OPEN"I",#1,F$
67 INPUT#1,A,B,C,D,E,F,G,H,I,J
68 FORR=1TOA:INPUT#1,A$(R):NEXT
69 FORR=1TOB:INPUT#1,B$(R):NEXT
70 FORR=1TOC:INPUT#1,C$(R):NEXT
71 FORR=1TOD:INPUT#1,D$(R):NEXT
72 FORR=1TOE:INPUT#1,E$(R):NEXT
73 FORR=1TOF:INPUT#1,F$(R):NEXT
74 FORR=1TOG:INPUT#1,G$(R):NEXT
75 FORR=1TOH:INPUT#1,H$(R):NEXT
76 FORR=1TOI:INPUT#1,I$(R):NEXT
77 FORR=1TOJ:INPUT#1,J$(R):NEXT
78 CLOSE#1:GOSUB93:PRINT@140,F$;:PRINT@480,"";:POKE65495,0:GOTO5
79 GOSUB93:PRINT@140,F$;:PRINT@260,"FILE NAME ?":PRINT@300,"";
80 LINEINPUT"";F$:POKE65494,0:OPEN"O",#1,F$
81 WRITE#1,A,B,C,D,E,F,G,H,I,J
82 FORW=1TOA:WRITE#1,A$(W):NEXT
83 FORW=1TOB:WRITE#1,B$(W):NEXT
84 FORW=1TOC:WRITE#1,C$(W):NEXT
85 FORW=1TOD:WRITE#1,D$(W):NEXT
86 FORW=1TOE:WRITE#1,E$(W):NEXT
87 FORW=1TOF:WRITE#1,F$(W):NEXT
88 FORW=1TOG:WRITE#1,G$(W):NEXT
89 FORW=1TOH:WRITE#1,H$(W):NEXT
90 FORW=1TOI:WRITE#1,I$(W):NEXT
91 FORW=1TOJ:WRITE#1,J$(W):NEXT
92 CLOSE#1:GOSUB94:RUN
93 CLS:PRINT@0,STRING$(5*32,178):PRINT@8,"n e w m a t c h";:PRINT@44,"by n4bp";:
PRINT@64,"LOAD   SAVE   PRINT   SORT   END";:RETURN
94 POKE65494,0:POKE360,203:POKE361,74:RETURN
```

LISTING 5 "RANDCALL"

```
20 N=220:OPEN"O",#1,"TEST":WRITE#1,N,N,N,N,N,N,N,N,N,N:POKE65495,0:FOR A=1 TO 10
:FOR Q=1 TO N:IFA=10 THEN N1=0 ELSE N1=A
40 GOSUB 100
50 A$=R$(1)+RIGHT$(STR$(N1),1)+R$(2)+R$(3)+R$(4)
60 POKE65494,0:WRITE#1,A$:POKE65495,0:PRINT A$;:NEXT Q,A:POKE65494,0:CLOSE#1:END
100 FOR R=1 TO 4:R$(R)=CHR$(RND(26)+64):NEXT R:RETURN
```



TECH NEWS

Mike Spenuk, VE3JTQ

PREREQUISITE: MICROCOMPUTER

Although it is already quite common in many U.S. universities, the Faculty of Applied Science at Queen's University in Kingston, Ontario has become the first Canadian university to use microcomputers as a standard, everyday learning tool in a regular undergraduate program. Zenith Data Systems was selected as the supplier of the microcomputers which will be integrated into all first-year engineering and applied science programs this fall.

MORE ABOUT NON-IONIZING RADIATION

For those of you interested in exploring further the effects of non-ionizing radiation, a book by Nicholas Steneck titled "The Microwave Debate" should prove interesting reading. According to Frank Barnes, professor of Electrical Engineering at the University of Colorado (working in the fields of laser and microwave damage to biological matter since 1963) in a review of the book in the May 1985 issue of "Spectrum" stated, "In the history of the debate over the biological effects of microwaves and radio waves, public policy has often been formed in the face of a lack of critical scientific information, conflicting public opinion, self-interest, the collision of strong personalities, and misinformation. This book, which reviews the history from 1930 to the present from the point of view of the interactions between science and public policy, is a thought-provoking commentary on the changing attitudes of the public toward the potential health hazards of radio-frequency and microwave radiation."

The $25.00 book is 279 pages in length. It was published in 1984 by MIT Press, Cambridge, Mass.

CELLULAR RADIO

Some readers of Radiosporting have been asking to "keep the computers out of the magazine." However, I think that, with this column at least, it is not possible. We have seen or heard of the many ways in which a microcomputer can enhance our operating abilities and the overall efficiency of our stations. For instance, the area of log keeping. There are many station operators who keep excellent logs by hand. A computer will not keep logs for those who don't already maintain their logs, but for those who do, the computer offers the ability to quickly analyze all the log data for any "key" you might choose (e.g., date, band, zone/country, etc.).

This is a sort of "passive" use of the microcomputer. Another use is more "active", directly interfacing the computer and the radio.

The "marrying" of the radio and computer has been done for some time in both commercial and amateur circles. On July 1 of this year, the Cellular Mobile Telephone Service was put into commercial service in both Toronto and Montreal. It has been operating in many U.S. cities for some time now. Because of the uniqueness of the system, it offers much improvement over the existing mobile telephone service it is expected to eventually completely replace. The basic disadvantage with the conventional mobile telephone service was in the use of a single, centrally located high powered transmitter to communicate with all the mobile units in the service area. This presented two further problems: channels could not be reused in the nearby service areas because the transmitted signals are strong enough to interfere with one another; the number of channels is limited and only a small number of simultaneous conversations can be handled. The capacity of these systems was limited to about 1,000 users per service area.

With the cellular system each service area is divided into "cells" with its own low power transmitter, receiver and control system. Cell sizes can vary from 1 mile square to a block or even a single building, depending on the density of the area. The advantage with using the low power transmitters is that channels can be reused if the sites are far enough apart to prevent interference.

The individual cell sites are linked to a switching office equipped with an electronic switching system. The heart of the system is a large computer which selects the appropriate cell and channel for the mobile unit. The computer also keeps track of all the units operating in its domain and where they are at any given time (tracking!). The "nice" part about this is that the user is unaware that "Big Brother is watching."

The operation of the system is as follows. When a mobile unit is first turned on (in the system's domain) it transmits a coded signal to the switching office which in turn acknowledges the unit (machine talking to machine, hi!) and an identification process occurs. If the unit happens to be stolen, the authorities are informed and are led directly to the cell in which the vehicle is located. At this point only visual location can occur.

If the unit is in use then the switching office will sample the signal strength at the cell and the surrounding cells the unit is near. This is accomplished by switching the cell's receiver to the channel that the unit happens to be on. The cell with the strongest signal gets the mobile. The new cell's receiver is set back to its usual channel. This process continues until the conversation is concluded or the mobile goes out of the system's domain. Switching from one cell to another is fast enough that no "data" is lost from the transmissions. The switching office is of course linked to the conventional telephone network.

The major advantages to a cellular system are that a mobile unit has continuous service as it travels through the cellular service area and that the number of simultaneous conversations possible is extremely high because of the reuse of frequencies and the number of frequencies available for each service area. Capacities of 100,000 per service area are realizable. (VE3JTQ)

CONTEST RULES

FRANK ANZALONE, W1WY
CQ Magazine

Calendar of Events

*	Jul.	27-28	Venezuelan CW Contest
*	Jul.	27-29	County Hunters CW Contest
	July	27-29	"Armadillo" Run
	Aug.	3-4	Wild Bunch 160 SSB Contest
†	Aug.	3-4	Romanian DX Contest
	Aug.	3-4	ARRL UHF Contest
	Aug.	10-11	European CW Contest
	Aug.	17-18	SARTG RTTY Contest
*	Aug.	17-18	SEANET SSB Contest
	Aug.	17-18	Alaska QSO Party
	Aug.	17-18	New Jersey QSO Party
	Aug.	24-25	All Asian CW Contest
	Aug.	24-25	GARTG RTTY Contest
†	Sep.	1	Bulgarian CW Contest
	Sep.	4-5	YL-RL "Howdy Days"
	Sep.	9-15	QCWA Invitation Party
	Sep.	14-15	European Phone Contest
	Sep.	21-22	Scandinavian CW Contest
	Sep.	28-29	Scandinavian SSB Contest
	Sep.	28-29	G-QRP Club Activity
	Oct.	6-7	Illinois QSO Party
	Oct.	12-13	Pennsylvania QSO Party
	Oct.	16-17	YL-RL Anniv. CW Party
	Oct.	19-20	Boy Scouts Jamboree
	Oct.	**26-27**	**CQ WW DX Phone Contest**
	Oct.	30-31	YL-RL Anniv. SSB Party
	Nov.	**23-24**	**CQ WW DX CW Contest**

** Covered last month.*
† Not official.

Romanian DX Contest

2000Z Sat. to 1600Z Sun., Aug. 3–4

No word from the Romanian Amateur Radio Federation this year. Following are the rules used in last year's contest. Operation was on all bands 3.5 thru 28 MHz, both c.w, and s.s.b.

Classes: Single operator, single and all band, and multi-operator all band (club stations).

Exchange: RS(T) and ITU zone. YO stations will also include 2 letters identifying their county (41 counties).

Scoring: QSOs with YO stations are worth 8 points; with stations outside own continent 4 points; with stations within own continent 2 points. (Own country has no value.)

Multiplier: Sum of ITU zones and YO counties worked on each band.

Final Score: Total QSO points from all bands (or single band) times the sum of the multipliers worked on each band.

Awards: The top scorer in each class in each country will receive the title "International Short-Wave Champion of Romania" and will receive a crystal cup.

Stations contacting at least 50 different stations, a minimum of which are Romanian, will receive an award. The same YO station worked on different bands will count separately (maximum of 5).

The continental winner, regardless of class section, will become an honorary member of the YO DX Club.

Use a separate log sheet for each band, indicate the multiplier in a separate column only the first time it is worked, and be sure to cross out any duplicate contacts. A summary sheet showing the scoring, etc., and the usual signed declaration that all rules and regulations have been observed is also requested.

Mailing deadline for all entries is September 4th to: Romanian Amateur Radio Federation, P.O. Box 05 - 50, R-76100 Bucharest, Romania.

"Wild Bunch" 160 SSB Contest

0000Z Sat. to 2359Z Sun., Aug. 3–4

Evidently last year's contest was a success as the "Wild Bunch" is at it again this summer.

Exchange: Signal report and QTH. State, VE province, or country. Members will also include their membership number in the exchange.

Points: 10 points per QSO, mobiles 20 points.

State, provinces and countries worked. In addition the following can be added to your multiplier. One for each member contacted. 2 if it's a honorary member, 3 if a charter member. A contact with club station VE7WCB is worth 10 multiplier points, work a mobile and earn 20 more multipliers, and an additional 20 if you can dig up 20 charter members contacts. Which could add up to a sizeable multiplier. *(Rather complicated and confusing.)*

Awards: Certificates to winners in each state, province, and country. Plaques to the overall winner and highest charter member score.

Write to KA1SR and an s.a.s.e. for a list of club members and information and requirements to join the "Wild Bunch" club.

Mailing deadline for mailing logs is September 7th to R. Koziomkowski, KA1SR, 5 Watson Drive, Portsmouth, RI 02871. Include an s.a.s.e. for a copy of the results.

European DX Contest

C.W.: Aug. 10–11 Phone: Sept. 14–15
Starts: 0000 GMT Saturday
Ends: 2400 GMT Sunday

This is the 30th annual contest sponsored by the DARC. The activity will be between European countries and the rest of the world on all bands 3.5–28 MHz.

Following are updated rules, including two new features. U.S. states will now count as a multiplier, and QSO dupe sheets will now be required for each band on which 200 or more contacts are made.

Only 36 hours out of the 48-hour contest period may be used by single-operator stations. The 12 hour off periods may be taken in one, but not more than three, periods anytime in the contest and must be indicated in the log.

Classes: Single operator and multi-operator single transmitter, both all bands. Multi-operator stations are allowed to change bands one time only within a 15 minute period. A quick band change and return is allowed to work a new multiplier.

Exchange: RS(T) plus a QSO number starting with 001. In addition, W/K stations will include their state (i.e., 599011 MA).

Scoring: One point per QSO and one point for each QTC reported.

Multiplier: The multiplier for non-European stations is determined by the number of European countries worked on each band (WAE list). Europeans will use the ARRL DXCC list. In addition, each call area of the following countries will be considered a multiplier: JA, PY, VE/VO, VK, ZL, ZS, and UA9*0. Each W/K state will also be considered a multiplier.*

The multiplier on 3.5 MHz may be multiplied by 4, on 7 MHz by 3, and on

14/21/28 MHz by 2.

Final Score: Total QSO points, plus QTC points, times the sum total multiplier from all bands.

QTC Traffic: Additional point credit can be realized by making use of the QTC traffic feature. A QTC is a report of a confirmed QSO that took place earlier in the contest and was later sent back to a European station. It can only be sent from a non-European station back to a European. The general idea is that after a number of Europeans have been worked, a list of these stations can be reported back during a QSO with another station. An additional, one point credit can be claimed for each station reported.

A QTC contains the time, call, and QSO number of the station being reported (i.e., 1300/DL2DN/134, which means that at 1300Z you worked DL2DN and received #134).

A QSO can be reported only once and not back to the originating station.

A maximum of 10 QTCs to a station is allowed. The same station may be worked several times to complete this quota. Only the original contact, however, has QSO value.

Keep a uniform list of QTCs sent; (3/7 indicates that this is the 3rd series of QTCs sent and that 7 QSOs are being reported).

Awards: Certificates to the top scorers in each class in each country and areas listed in the multiplier. Continental leaders and stations having at least half the score of the continental leader will also be honored.

Disqualification: Violation of the rules of the contest, unsportsmanlike conduct, or taking credit for excessive duplicate contacts will be deemed sufficient cause for disqualification.

Logs: It is suggested that you use the official DARC or equivalent forms. Figure 40 contacts to the page, and use a separate sheet for each band. A large-size s.a.e. and IRCs will get you a supply.

All entrants are now required to submit cross-check dupe sheets for each band with 200 or more QSOs. A penalty of three contacts will be deducted for each duplicate QSO that is removed by the committee.

Mailing deadline is September 15th for C.W. and October 15th for Phone. All entries go to: The WAEDC Contest Committee, P.O. Box 1328, D-8950 Kaufbeuren, West Germany.

WAE Country List: C31, CT1, CT2, DL, EA, EA6, EI, F, FC, G, GD, GI, GJ, GM, GM Shetland, GU, GW, HA, HB9, HB0, HV, I, IS, IT, JW Bear, JW, JX, LA, LX, LZ, M1, OE, OH, OH0, OJ0, OK, ON, OY, OZ, PA, SM, SP, SV, SV Crete, SV Rhodes, SV Athos, TA1, TF, UA13456, UA2, UA Franz Josef Land, UB5, UC2, UN1, UO5, UP2, UQ2, UR2, Y2, YO, YU, ZA, ZB2, 1A0, 3A, 9H1, 4U1 Geneva, 4U1 Vienna.

New Jersey QSO Party

2000Z Sat. to 0700Z Sun. Aug. 17–18
1300Z Sun. to 0200Z Mon. Aug. 18–19

This is the 26th annual party sponsored by the Englewood ARA. Phone and c.w. are part of the same contest, the same station may be worked on each band and mode, and NJ stations may contact in-state stations for QSO and multiplier credit.

Exchange: QSO no., RS(T), and QTH. County for NJ, ARRL section or country for others.

Scoring: NJ stations score 1 point for W/K and VE/VO contacts, and 3 points for DX. Multiply total by ARRL sections worked (maximum of 74). KP4, KL7, KH6, etc., are 3-point contacts and section multipliers.

Out-of-state stations multiply total NJ QSOs by number of NJ counties worked (maximum of 21).

Frequencies: 1810, 3535, 3900, 7035, 7135, 7235, 14035, 14280, 21100, 21355, 28100, 28610, 50–50.5, and 144–146. Try phone on even hours, 15 on odd hours, and 160 at 0500 UTC.

Awards: Certificates to the top scorers in each NJ county, ARRL section, and DX country. Second-place awards if four or more logs are received from that section. Also Novice and Tech., and mobile awards.

Use UTC time, indicate the multiplier only the first time it is worked, include a QSO check sheet, and include a summary sheet showing the scoring, etc. Send a large s.a.s.e. if you wish a copy of the results.

Stations planning activity in NJ are requested to advise the EARA by August 1st so that coverage of all counties may be planned.

Logs must be received no later than Sept. 14th and go to: Englewood ARA, P.O. Box 528, Englewood, NJ 07631-0528.

All Asian C.W. Contest

0000Z Sat. to 2400Z Sun., Aug. 24–25

The same rules as for the Phone Contest on June 15–16 apply here. See June Contest Calendar for complete rules. Logs for this one must be in the hands of the committee no later than November 30th. They go to: JARL, P.O. Box 377, Tokyo Central, Japan.

GARTG RTTY Contest

VHF: 1200Z to 1600Z Sat., Aug. 24
40 & 80 M: 0700Z to 1100Z Sun., Aug. 25

This is the fourth in a series of five short contest periods scheduled by the GARTG for 1985. They are local activities for GARTG members, but other areas are invited to participate.

Classes: A—200 watts or more input. B—200 watts or less input. C—SWL. D—VHF.

Exchange: RST, QSO no., name, and QTH.

Scoring: Contacts on 40 and 80 are worth 1 point. VHF contacts on 2 meters 1 point. On 70 cm 2 points. On 23 cm 3 points per kilometer worked. Final score total of QSO points.

Each contest is a separate activity and should be scored and reported separately. Results will be published in the GARTG news bulletin and the "RTTY" club magazine.

Logs must be mailed no later than 20 days from the end of each contest and go to: Wolfgang Puenjer, DL8VX, P.O. Box 90 11 30, D-2100 Hamburg 90, Federal Republic of Germany.

Bulgarian C.W. Contest

0000Z to 2400Z Sun., Sept. 1

This is a world-wide contest open to all, but with emphasis on working LZ's.

Classes: *A.* Single operator, single band. *B.* Single operator, all band. *C.* Multi-operator, all band. *D.* S.w.l.'s. Use all bands, 3.5 through 28 MHz.

Exchange: RST plus your ITU zone.

Scoring: One point for QSO with stations in the same continent (including same country), 3 points if in another continent, and 6 points for LZ contacts.

S.w.l.'s score 3 points if both calls and exchanges are reported, and 1 point if both calls but only one exchange.

Multiplier: Sum total of ITU zones worked on each band.

Final Score: Total QSO points from all bands times the total multiplier.

Awards: Medals to the top three world scorers in classes *A* and *B*. Cup and medals to classes *B* and *C*. Medals to continental leaders and s.w.l.'s.

Use a separate log sheet for each band, a summary sheet showing the scoring, and the usual signed declaration, plus your name and address in block letters.

Contest contacts may be used for the many LZ awards. Write to the BFRA for details.

Mailing deadline for logs is October 5th to: Bulgarian Federation of Radio Amateurs, P.O. Box 830, Sofia 1000, Bulgaria.

YLRL "Howdy Days"

1800Z Wed. to 1800Z Thurs., Sept. 4-5

This activity is for YL's, and scores will be based on contacts between YL's only. All licensed woman operators throughout the world are invited to join the party.

All bands and modes 10 through 80 meters may be used. Only one contact with the same station is permitted, regardless of the band. Crossband and Net contacts do not count.

Suggested Frequencies: C.W.—3555, 7055, 14055, 21095, 28095.

SARTG RTTY Contest

Three Periods GMT
0000–0800 & 1600–2400 Sat., Aug. 17
0800–1600 Sun., Aug. 18

This is the 15th annual contest sponsored by the Scandinavian Amateur Radio Teletype Group. Use all bands 3.5 through 28 MHz. The same station may be worked on each band for QSO and multiplier credit.

Classes: Single operator, multi-operator single transmitter, and s.w.l.

Exchange: QSO no., signal report.

Points: QSOs with own country, 5 points. With other countries on same continent, 10 points. With other continents, 15 points. The U.S., Canada, and Australia call areas count as separate countries for scoring.

Multiplier: Each DXCC country and each W/K, VE/VO, and VK call area. A multiplier will not be considered unless the claimed station appears in at least five logs, or a log is received from that station.

Final Score: Sum of QSO points from all bands times the sum of the multiplier from each band.

S.w.l.'s use same scoring but based on sum of stations and messages copied.

Awards: Certificates to the top-scoring stations in each class in each country and each call area of the U.S., Canada, and Australia.

Use a separate sheet for each band, and include a summary sheet showing the scoring, comments, and other essential information, and your name and address in block letters.

Logs must be received by October 10th and go to: Contest Manager, Jorgen Dudahl-Lasjon, OZ1CRL, Egebjergvej 90, 4500 Nykoping Sj, DENMARK.

S.S.B.—3955, 7255, 14265, 21365, 28595. (Plus or minus 15 kHz.)

Score 2 points for each YLRL member worked; 1 point if it's with a non-member. Therefore, members should identify themselves in the exchange. There is no multiplier; just add the QSO points.

The top-scoring YLRL member will receive her choice of a YLRL pin, charm, or stationery. The highest scoring non-member will receive a one-year membership in the YLRL.

Submit your original log, no carbon copies. Indicate if you are a member, score your log, and sign the summary sheet.

You are expected to delete all duplicate contacts. For each duplicate contact that is removed by the Committee, a penalty of three additional and equal contacts will be removed from your score.

Logs must be received by October 4th and go to: Marty Silver, NY4H, 3118 Eton Road, Raleigh, NC 27608.

Alaska QSO Party

0200Z Sat. to 0200Z Mon., Aug. 17–18

This is the 4th time around for this QSO Party sponsored by the Alaska DX Association. All bands will be activated, offering a good opportunity to pick up some of those vacant spots for 5 Band WAS, WAZ, DXCC, etc. The same station may be contacted on each band, c.w. and s.s.b., for QSO credit, but counted only once as a multiplier.

Exchange: RS(T) and judicial district for KL7's. RS(T), QSO no., and state, province or DX country for others.

Scoring: *For Alaskans*—QSOs on 10, 15, and 20 count 2 points. On 40, 80, and 160 they are worth 5 points.

For non-Alaskans—On 10, 15, and 20 QSOs count 5 points. On 40, 80, and 160 they are worth 10 points.

Multiplier: *For Alaskans*—states, VE provinces, and DXCC countries worked on each band.

For non-Alaskans—KL7 judicial districts (1–4) worked on each band.

Final Score: Total QSO points from all bands times the sum of the multipliers from each band.

Frequencies: 10 kHz inside the low edge of each General Class segment, both on c.w. and s.s.b.

Awards: Certificates to the winner in each state, VE province, and DX country. The top Alaskan and non-Alaskan will receive an Alaskan Goldpanner Plaque.

Logs and summary sheets must be received no later than October 1st and go to: Alaska DX Association, Att: Tony Smaker, KL7AF, P.O. Box 1614, Kodiak Island, Alaska 99615.

John Attaway's K4IIF invitation for opinions to make changes in the scoring system in our World Wide DX Contest, that appeared in the June issue of his DX Column, is bound to start a controversy, but that is nothing new. We have been receiving gripes about the inequities in the scoring system for years. Invariably they are from individuals concerned only about their own disadvantages.

We concede that on a world wide basis certain areas will have the edge over other areas, but this does not hold true over the years. Changes in the propagation cycle, a change of activity in certain countries and areas are a deciding factor who has the advantage that particular year.

The change made some years ago that increased the QSO point value to 2 points between North American stations over the original 1 point, was done to stimulate activity in the Caribbean area. This eventually paid off with an increase in Contest Expedition stations that go to the many islands in that area. This created many new country multipliers that would otherwise not be available, not only for the U.S. but also for *all* other areas, especially the many European countries.

We do not agree or go along with the changes suggested by TF2CW. Siggi's suggested change would no doubt benefit Iceland and Zone 40, both areas of very low activity. The Europeans do not need an added advantage to be competitive. With the tremendous activity and many available countries in that area they have managed to snag many awards.

KG6DX's suggestion that we include a separate listing of top scores by continents in the final results is a good one and will be forwarded to the Contest Committee. This should emphasize the fact that competition is between stations in the same continental areas and not on a worldwide basis.

So quoting Joel's remarks, "we are leaving the *CQ* World WIDE DX Contest scoring system just as it is."

A phone call from KZ5M advised me that the "Armadillo Run" is again scheduled on the same weekend as the County Hunters CW Contest. Same format as last year, but the concentration this year will be counties in New Mexico and Oklahoma. No other details. I assume logs will again go to: The Texas DX Society, Att: Dennis Motschenbacker, KZ5M, P.O. Box 82, Thompsons, TX 77481.

The St. Maarten A.R.C. called attention to the fact that the maximum legal transmitter power for the French Antilles (FM, FG, FS and etc.) is only 100 watts, therefore linear amplifiers are normally not allowed on French territory. Also to keep this in mind when comparing contest scores with other stations in the same general area.

CQ The Radio Amateur's Journal
76 North Broadway
Hicksville, NY 11801

CAN-AM CONTEST RULES

PHONE: Sept. 21-22, 1985 start on Saturday 1800 GMT, end on Sunday 1800 GMT

CW: Sept. 28-29, 1985 start on Saturday 1800 GMT, end on Sunday 1800 GMT

OBJECTIVE: Sponsored by the Ontario Contest Club and Canadian Radio Relay League to increase the friendship among Canadian and American Amateurs and to provide a means of measuring the operating skills and equipment performance.

CATEGORIES OF COMPETITION: 1. SINGLE OPERATOR - All Band, Single band and QRP: only stations operated by the station licensee.

2. MULTIOPERATOR, single transmitter: stations operated by more than one operator or a single operator other than the licensee, or a club stations.

MULTIOPERATOR stations can operate full 24 hour period. SINGLE OPERATOR stations can operate maximum 20 hours with one or two rest periods totaling minimum four hours. The rest periods must be clearly marked in the log. Any further rest periods do not need to be logged.

BANDS: 1.8, 3.5, 7, 14, 21, and 28 MHz bands are permitted, US General portion of the bands is recommended for use.

NUMBER EXCHANGE: Signal report: use RS on phone and RST on CW, plus sequential QSO number starting with 001, plus multiplier area (MX) abbreviation, in that order: i.e. 59001CT, 599021NY. Multiplier area abbreviations are the usual two letter postal abbreviations for 50 US states, CN-for Caribbean (KC4, KG4, KP1, KP2, KP4, KS4, KV4 and their A-, N-, and W-, prefix equivalents), PC - for Pacific (rest of US possessions and Antarctica). Canadians will use: NL - VO1, VO2; NB - VE1 New Brunswick; NS - Nova Scotia; PE - Prince Edward Isl.; SI - Sable and St. Paul Isl.; PQ - VE2; ON - VE3; MB - VE4; SK - VE5; AT - VE6; BC - VE7; NW - VE8; YK - VY1 Yukon.

MULTIPLIERS: 50 US states, 2 US possessions (Caribbean, Pacific), 10 Canadian provinces, 2 territories (NWT, YK), 1 Islands (Sable, St. Paul). Total is 65 multipliers per band; maximum possible on all 6 bands is 390.

POINTS: 1. American to American, Canadian to Canadian contacts count for 2 points.
2. American to Canadian (and vice versa) contacts count for 3 points.
The same station may be contacted once on each band and mode.

SCORING: The final score is the sum of the total QSO points from all bands, multiplied by the sum of the multipliers from all bands. Phone and CW sections of the contest are considered separate contests. However, combined score for phone and CW will be used for overall competition. Combined score will be calculated by the contest committee as a result of the addition of phone and CW scores.

AWARDS: Handsome certificates will be awarded in each multiplier area on both modes in single operator categories. Top five multioperator stations in each country will receive certificates for high combined phone and CW scores. Where appropriate, the Contest Committee will award additional awards. All scores will be published in QST Magazine.

TROPHIES: Single operator, Combined - Canadian Champion, ARRL Trophy
American Champion, CRRL Trophy
Multioperator, Combined - Canadian Champion, Albuquerque DX Assn. Trophy
American Champion, International Radio Sport Assn. Trophy
The trophies will be awarded at the Dayton Hamvention. Each station is eligible for one trophy only.

LOG INSTRUCTIONS: All times must be kept in GMT. Indicate multipliers the first time only on each band. Log must be checked for duplicate contacts, correct QSO points and multipliers. Do not use separate logs for each band. Rest periods must be clearly marked in the log. Each entry will consist of log sheets, summary sheets and signed declaration. Entries over 200 QSOs must include check sheets for each band. Official los, check sheets and summary sheets with multiplier tables are available from the Contest Chairman. A large SASE with Canadian stamps (or US stamps not glued to the envelope) will bring samples. Contestants are encouraged to use them as they greatly help with processing of entries.

SINGLE BAND: Any band can be selected for the single band category. All single band entries will be judged in one category. It is up to the contestant to select the band that can bring him or her the highest score.

QRP: A maximum of 10 watts input is allowed for use during the duration of the contest.

DISQUALIFICATION: Violation of national amateur radio regulations or rules of the contest, unsportsmanlike conduct, poor signal quality, taking credit for excessive (more than 2%) duplicate contacts or unverifiable QSOs or multipliers will be deemed sufficient cause for disqualification. Each incorrectly logged call or exchange will cause the contact to be deleted from the log. Actions and decisions of the CAN-AM Contest Committee are official and final.

DEADLINE: All entries must be postmarked not later than 30 days after the contest and mailed to:

CRRL CAN-AM Contest, Box 65, Don Mills, ON, M3C 2R6, Canada

第25回 ALL ASIAN DX 1984 CW RESULTS

Call/Band (Multi Band Single Op.)	1.9	3.5	7	14	21	28	Total	Score
5Z4MX		22/62	19/25	72/212	86/408	39/69	238/776	184688
HA7UG/p		22/100	43/115	81/367	43/85	5/6	194/673	130562
KD7P/KH2	7/24	35/198	54/195	70/266	71/345	58/161	295/1189	350755
PY5MR	—	—	25/43	7/8	1/1	—	33/52	1716
W23TMD	—	19/112	57/290	52/210	1/1	—	129/613	79077
UA9SA	12/132	30/446	43/325	44/677	43/285	13/15	185/1880	347800

Call/Band (Multi Band Multi Op.)	1.9	3.5	7	14	21	28	Total	Score
LZ2KTS	15/117	43/220	39/77	92/280	89/207	18/30	296/931	275576
VK3EZ	—	13/48	49/167	67/298	63/300	28/42	220/855	188100
LU4A		1/2	26/55	21/47	14/16	1/2	63/122	7686
K5LZO	—	17/82	55/272	62/250	1/1	—	135/605	81675
HZ1AB	3/27	21/168	41/513	53/1168	39/617	11/43	168/2536	426048

Band / Cntinent	1.9	3.5	7	14	21	28
Africa	—	—	—	—	—	—
Europe	UA6LFZ/2040	UA4PCI/3078	UA4HNP/7100	UA6AVD/30422	HA7RB/2112	YU3ER/35
Oceania	—	—	—	VK4TT/17100	VK5AGX/15378	VK4XA/2250
S.America	—	—	PY1APS/920	LU4FDM/1032	—	—
N.America	—	W6RJ/8804	N16W/34364	K7JA/22050	—	—
Asia	UA9FKW/4440	UA9CBM/18060	JH6SOR/20351	UAφSAU/45770	UJ8JA/15928	JH1RNZ/704

The continental winners in Multi Band Single OP category receive Certificates from Minister for Post and Telecom. of Japan and JARL medal. The continental winners in Multi Band Multi OP receive JARL medal. Stations denoted with * will receive JARL certificates.
The 1985 CW All Asian Contest is on Aug. 24/25

NORTH AMERICA

JAMAICA				
★6Y5HN	M	21	16	336
CANADA				
★VE3EWY	14	10	5	50
VE2AEJ/3	14	7	7	49
★VO1AW	M	66	39	2574
USA				
★W6RJ	3.5	284	31	8804
★W7DRA	3.5	6	2	12
★N16W	7	484	71	34364
N84AW	7	457	65	29623
(N6AW,opr.)				
WA6VNR	7	428	69	29532
NE6I	7	234	53	12302
WGOUL	7	87	37	3219
★K1XM	7	41	21	861
★K4II	7	39	19	741
★W5AT	7	11	8	88
★K7JA	14	315	70	22050
★NR5M	14	224	57	12768
★W6SZN	14	129	41	5289
★N8BC	14	58	31	1798
K6CSL	14	35	21	735
★N4MM	14	22	16	352
★KA2BBZ	14	22	15	330
★W1END	14	15	12	180
KQ1F	14	14	12	168
AA23EE	14	12	11	132
KA7FEF	14	12	9	108
W5EIJ	14	11	7	77
★K3TW	14	10	6	60
WA3DMII	14	6	5	30
KW2J	14	3	3	9
★W23TMD	M	613	129	79077
(W6TMD,opr.)				
★W9SE	M	236	90	21240
★N5JB	M	231	76	17556
KE23PQ	M	205	83	17015
(KE6PQ,opr.)				
WA6R	M	190	69	13110
★W3GM	M	139	60	8340
K3ZO	M	97	54	5238
★K4RZ	M	47	28	1316
★K7LXC	M	191	4	764
★KφOST	M	27	19	513
KV9S	M	13	9	117
W5NR	M	17	3	51
★K5LZO	Mop	605	135	81675
(+NM5M,KA5SBS,oprs.)				
★WφRSG	Mop	432	117	50544
(+WφKEA,oprs.)				
★N23ADI	Mop	414	95	39330
(N6ADI,W6FGV,oprs.)				

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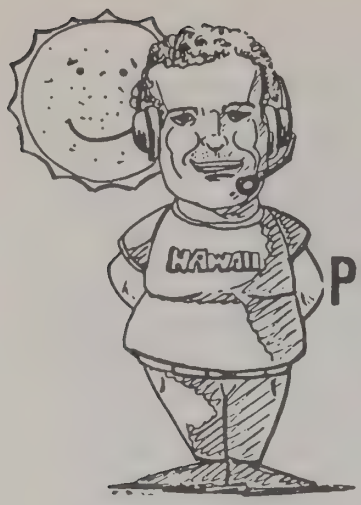
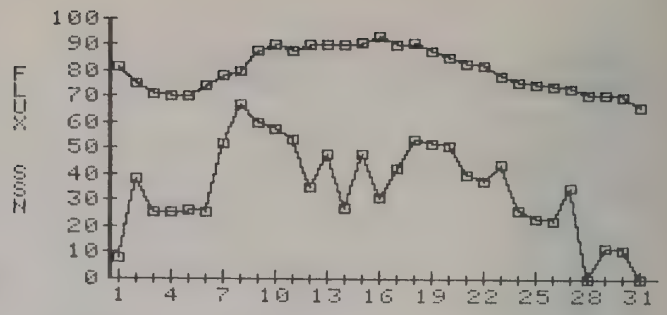
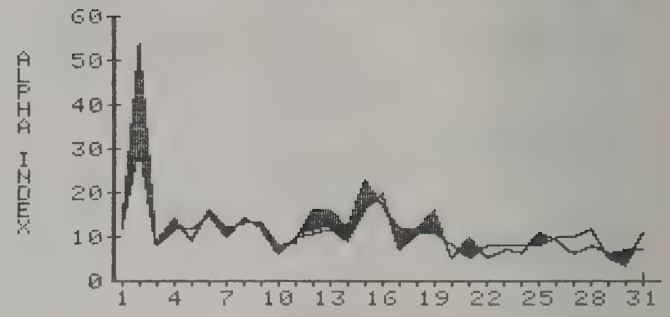
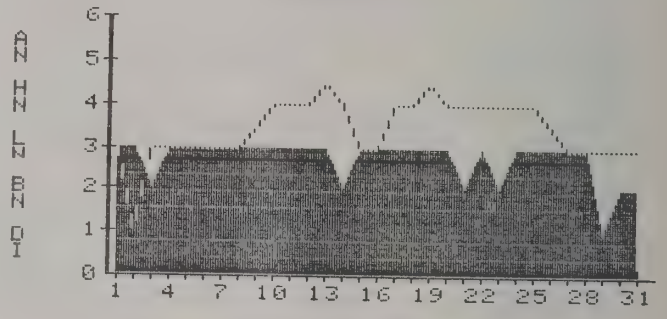


KH6BZF PROPAGATION REPORT







Statistical information is compiled by KH6BZF and processed on a computer by VE3BMV.

The first diagram shows the value of solar flux (top curve) and SSN - sunspot number (bottom curve). The X axis and scale is the same for both. The Y - axis is calibrated in days of the month.

The second diagram shows variation of the Alpha Index for each day. The dark shaded area shows increases, while the white area shows decreases in the value of the Alpha Index for each day.

The third diagram shows the value of the K Index (shaded area) on a scale from 0 to 6. The dotted line represents the propagation quality where the scale is: from 5 = Above Normal to 1 = Disturbed.

FORECAST:

BEST HF CONDX: JUL: 01-03, 05-08, 10, 15-16, 25-26
BEST VHF CONDX: JUL: 09-13, 18-20, 22-23, AUG:06-10

MAY '85	CONDX	SOL FLUX LEVEL	SSN#	GEOMAGNETIC LEVEL	ALPHA INDEX	K INDX	NOTES
01	LN	081 VY LOW	8	UNSETTLED	12/12	#K=3	RGN 4647 on limb
02	DIS	075 VY LOW	38	UNSETTLED MAJOR STORM	30/54	K=3	RGN 4650(13) 4651(51)
03	LN	071 MOD-LOW	25	QUIET-UNSETTLED	08/09	K=2	RGN 4649(2) 4651(3)
04	LN	070 VY LOW	25	UNSETTLED-ACTIVE	12/14	K=3	RGN 4649(1) 4650(4)
05	LN	070 VY LOW	26	QUIET-UNSETTLED	12/09	K=3	RGN 4649(3) 4650(3)
06	LN	074 VY LOW	25	UNSETTLED-ACTIVE	15/16	K=3	RGN 4649(2) 4650(3)
07	LN	078 VY LOW	52	UNSETTLED	10/12	K=3	RGN 4650(1) 4652(8)
08	LN	080 VY LOW	67	UNSETTLED-ACTIVE	14/13	K=3	RGN 4649(13) 4650(4) 4952(9) 4653(1)
09	LN-HN	088 VY LOW	60	UNSETTLED	12/13	K=3	RGN 4649(4) 4650(2) 4652(12) 4653(2)
10	HN	090 VY LOW	57	QUIET-UNSET-ACTIVE	06/08	K=3	RGN 4649(3) 4650(0) 4652(30) 4653(4)
11	HN	088 VY LOW	53	UNSETTLED	10/09	K=3	RGN 4649 4653 4652 4650
12	HN	090 VY LOW	35	UNSETTLED-ACTIVE PER	11/16	K=3	RGN 4652(26)
13	AN-HN	090 MODERATE	48	UNSETTLED	12/16	K=3	RGN 4652(26) 4653(2)
14	HN	090 VY LOW	27	UNSETTLED	09/12	K=2	RGN 4652(17) Decaying
15	LN	091 VY LOW	48	ACITVE-UNSETTLED	16/23	K=3	NO RGN READINGS Now thru 07 June, 1985 Due to non-observation from Hawaii
16	LN	093 VY LOW	31	ACTIVE-UNSETTLED	20/17	K=3	
17	HN	090 VY LOW	42	UNSETTLED-ACTIVE	07/12	K=3	
18	HN	091 VY LOW	53	UNSETTLED	11/12	K=3	
19	AN-HN	088 VY LOW	52	UNSETTLED	11/16	K=3	HF GOOD 17-20 JUNE
20	HN	085 VY LOW	51	UNSETTLED	08/05	K=3	
21	HN	083 VY LOW	40	UNSETTLED-QUIET	05/10	K=2	
22	HN	082 VY LOW	37	QUIET-UNSETTLED	08/05	K=3	GOOD-EXCELLENT H.F.
23	HN	078 VY LOW	44	QUIET-UNSETTLED	08/07	K=2	GOOD-EXCELLENT H.F.
24	HN	076 VY LOW	26	QUIET-UNSETTLED	08/06	K=3	GOOD-EXCELLENT H.F.
25	HN	075 VY LOW	23	QUIET-UNSETTLED	08/11	K=3	GOOD H.F.
26	HN-LN	074 VY LOW	22	QUIET-UNSETTLED	10/09	K=3	
27	LN	073 VY LOW	35	QUIET-UNSETTLED	10/06	K=3	
28	LN	071 VY LOW	0	QUIET-UNSETTLED	12/08	K=3	6 METERS OPEN
29	LN	071 VY LOW	12	QUIET	05/06	K=1	BEST H.F. THIS MONTH
30	LN	070 VY LOW	11	QUIET-UNSETTLED	03/07	K=2	
31	LN	066 VY LOW	0	QUIET-UNSETTLED	11/07	K=2	

1985 METEOR SHOWERS:

DELTA AQUARIDS	15. JUL - 15 AUG.
ORIONIDS	16-27 OCTOBER
LEONIDS	15-19 SEPTEMBER
GEMINIDS	07-15 DECEMBER

On June 18 all recent active regions crossed over the West Limb of the disk, therefore no sunspots on the solar disk.

Increasing occasions of sporadic Es short-skip may be expected during the month of July or so. Expect conditions this summer be like those of the Summer of 1976, a Solar Cyclic low.

HALLEY'S COMET

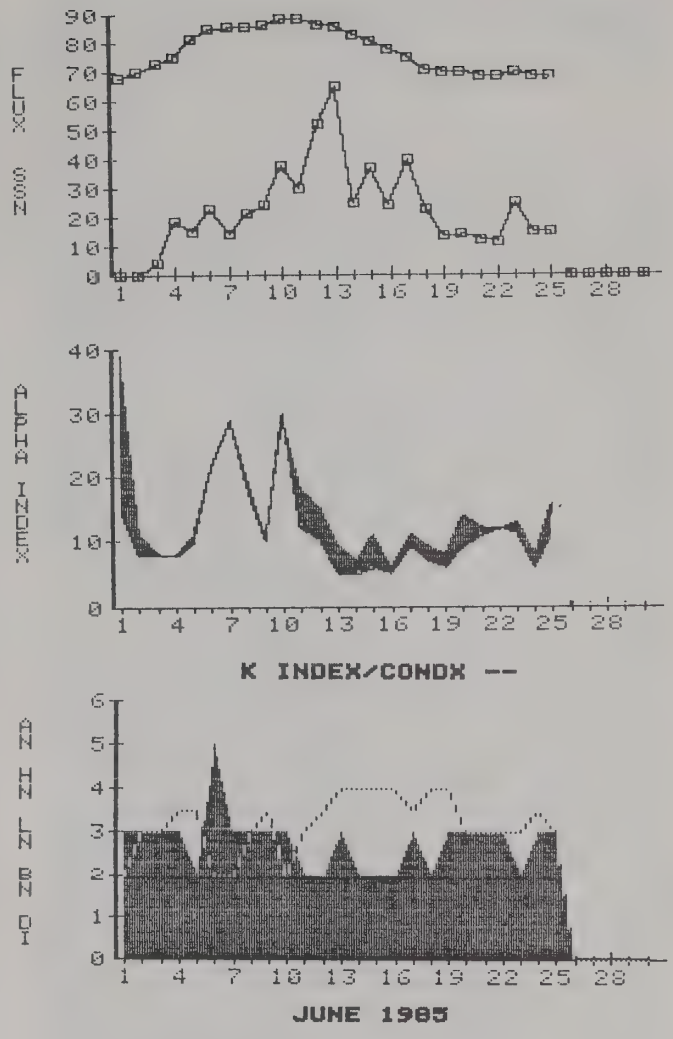
Halley's Comet, next February, when it will be at its brightest, millions of people around the world will be peering at it through telescopes (8 inch or larger). This most famous of all comets was named for Sir Edmund Halley, the English astronomer who foretold the comet's return in 1682. He correctly predicted it should appear again in 1759 and at fairly regular intervals thereafter. Historical records show that this comet was seen as long ago as 240 B.C. and that it reappeared every 76 to 79 years. Our last spectacular sight of this comet was in 1910. Unfortunately, north hemisphere will not have a front seat for Halley's Comet. However, the southern hemisphere will have the best viewing.

Thoughts from Rainbow Bay:

EVER NOTICE? "Economy size" means a large box of soap, but a small automobile!

SEX IS A LOT LIKE RIDING IN A HOT-AIR BALOON, still fun, but you are not sure how long you can keep it up!!!

FORECAST:



BEST HF CONDX: JUL: 21-24, 26, AUG: 6-11, 16-21
BEST VHF CONDX: JUL: 26-31, AUG: 01-06, 12-16

JUN '85	CONDX	SOL FLUX LEVEL	SSN#	GEOMAGNETIC LEVEL	ALPHA K INDEX INDX	NOTES
01	LN-DIS	068 VY LOW	0	UNSETTLED-ACTIVE	15/39	K=3
02	LN	070 VY LOW	0	QUIET-UNSETTLED	08/11	K=3
03	LN	073 VY LOW	4	QUIET-UNSETTLED	08/NR	K=3
04	HN-LN	075 VY LOW	18	QUIET-UNSETTLED	08/NR	K=3
05	HN-LN	082 VY LOW	15	QUIET-UNSETTELD	10/11	K=2
06	BN	085 VY LOW	23	ACTIVE-MINOR STORM	21/NR	K=5 MINOR STORM
07	BN	086 VY LOW	14	ACTIVE-MINOR STORM	29/NR	K=3 STORMY
08	LN	086 VY LOW	21	ACTIVE-UNSETTLED	18/19	K=3
09	LN-HN	087 VY LOW	24	UNSETTLED-ACTIVE	10/NR	K=3 MINOR STORM @ 09/1714
10	BN	089 VY LOW	38	ACTIVE-MINOR STORM	30/29	K=3 STORMY
11	LN	089 VY LOW	30	ACTIVE-UNSETTLED	12/18	K=2
12	LN-HN	087 VY LOW	52	UNSETTLED	10/15	K=2 RGN 4662(2) 46665(5) 4663(5)
13	HN	086 VY LOW	65	QUIET-UNSETTLED	05/09	K=3 RGN 4660(1) 4662(1) 4665(8) 4663(4)
14	HN	083 VY LOW	25	QUIET	05/07	K=2 RGN 4662(1) 4663(4)
15	HN	081 VY LOW	37	UNSETTLED-QUIET	06/11	K=2 RGN 4662(1) 4663(1) 4666(5)
16	HN	078 VY LOW	24	QUIET	05/06	K=2 RGN 4663(1) 4666(3)
17	HN-LN	075 VY LOW	40	QUIET-UNSETTLED	09/11	K=3 ALL RGN OFF-DISK
18	HN	071 VY LOW	23	QUIET	07/09	K=2 FEW SUNSPOTS
19	HN	070 VY LOW	13	QUIET-UNSETTLED	06/08	K=3 RGN 4667(3)
20	LN	070 VY LOW	14	QUIET-UNSETTLED	09/14	K=3 SUDDEN IMPULSE 20/1600
21	LN	069 VY LOW	12	UNSETTLED-ACTIVE	11/12	K=3
22	LN	069 VY LOW	11	UNSETTLED-ACTIVE	12/12	K=3
23	LN	070 VY LOW	25	UNSETTLED	11/13	K=2 RGN 4668(3) 4667(1)
24	HN-LN	069 VY LOW	15	UNSETTLED	06/08	K=3 RGN 4668(5)
25	LN	069 VYLOW	15	UNSETTLED-ACTIVE	11/16	K=3 RGN 4668(5)

PROPAGATION HINTS

Tony Gargano, N2SS

Most of you know that at 18 minutes past the hour, every hour, WWV broadcasts the latest propagation information and indices. This can be extremely useful information if you know what to do with it. (I certainly don't profess to be an expert in this area but I have had an interest in the study of propagation for some time now.) One thing you can do with the WWV information is to apply it to a set of guidelines that I have developed based on my own personal observations over the past several years.

The information broadcast by WWV is the Solar Flux number, "A" Index and "K" Index. As far as the rule of thumb I want to share with you, you only need to know the numbers and not necessarily what they represent. You will find that at this time in the current sunspot cycle the Solar Flux numbers broadcast by WWV typically run in the low seventies but there will still be the occasional instances of the Flux rising into the eighties and nineties.

When the flux is in the seventies and the A Index is in the single digits you can expect fair to good openings on 20 meters, while 15 and 10 will be virtually dead. When the A Index rises into the double digit range, the quality of the 20 meter openings will drop to poor to fair (or non-existent if the A Index goes high enough!)

When the Flux is in the eighties and the A Index is in the single digits, look for good openings on 20 meters, poor to fair conditions on 15 meters, while 10 meters will still be virtually dead. When the "A" rises into the double digit range, 20 meters conditions will drop to just fair and 15 non-existent to spotty. Again if the "A" goes really high, turn on the TV and watch the ballgame.

When the Flux is in the nineties and the "A" Index is in the single digits, look for excellent conditions on 20 meters, good openings on 15 and poor to fair on 10 meters. If the "A" Index is in the double digit range, 20 meters will be good, 15 meters will drop to just fair and 10 meters will be non-existent to spotty.

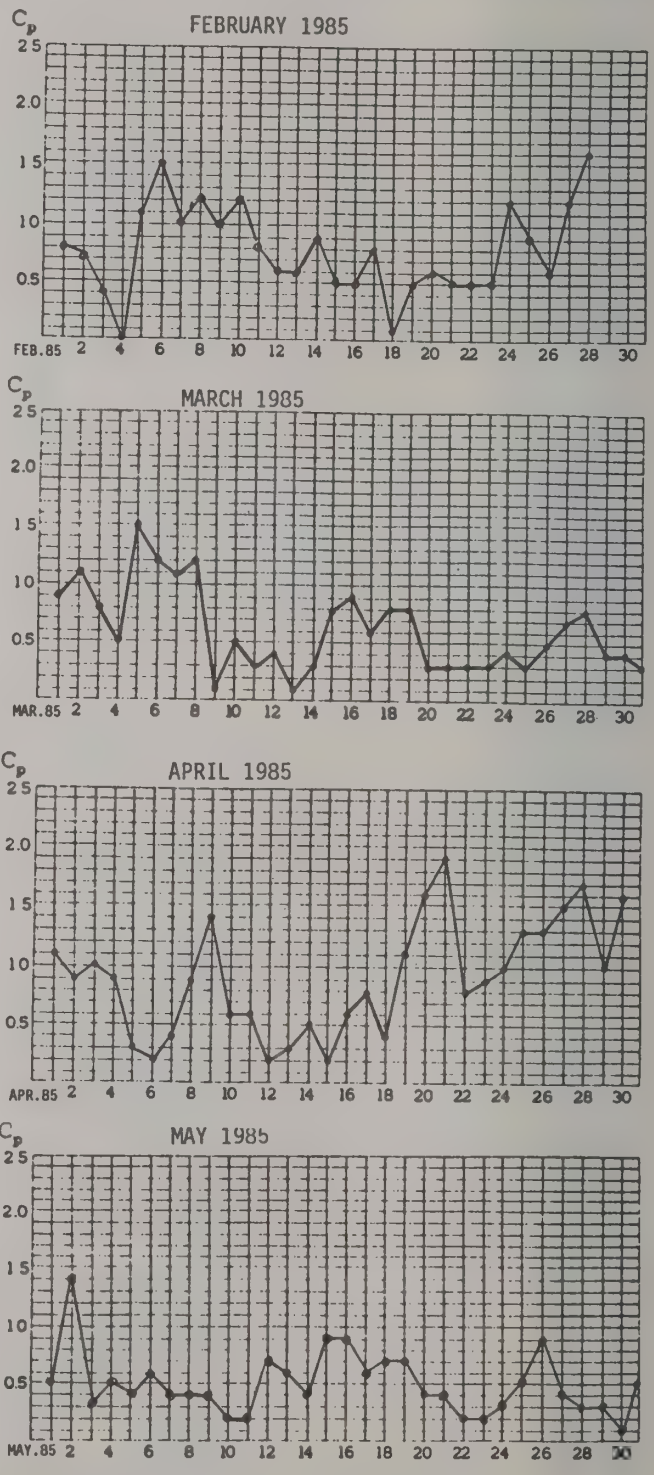
I can vouch for these rules of thumb during fall, winter and early spring months. They may need to be modified during late spring and summer when we have longer hours of daylight and, consequently, much higher levels of signal absorption. I haven't been active enough during this time of the year to make conclusive observations.

Having said all this, remember, these are just guidelines. How many times have you worked a new one when the bands were "dead"?! I would like to hear from anybody else who might have information of this type form which we could all benefit. Also, if there are any other propagation buffs out there, I have available the daily Solar Flux numbers and "A" Indices going back over the past few years. Send me an SASE if you want a copy. It is interesting, for example, to look at past contest logs and compare what you were working with the propagation indices for that time.

And don't forget 10 meters! On Sunday, May 12, I tuned across 10 meters and as usual it sounded like the antenna was disconnected. But, wait the Flux is at 90. Oh, what the heck, let's see what a CQ DX raises. Back came a 7Q7 followed by a 3B9! Not bad for a "dead" band. (Frankford RC)

DAILY GEOMAGNETIC PLANETARY Cp INDEX

The 72 hour forecast of geomagnetic activity is available by calling 1-613-992-1299 (24 hrs./7 days a week). The forecast is updated every Tuesday and Friday between 0900 and 1000 a.m. EST.
Energy, Mines and Resources Canada, Earth Sciences Earth Physics Branch, Div. of Seismology and Geomagnetism, Ottawa, Ontario.



Daily Geomagnetic Planetary C_p Index

EMERGENCY -TRAFFIC

Chuck Clark, K4ZN

HURRICANE SEASON

June through November is the period when meteorologists are on the lookout for hurricanes in the Atlantic. While the storms occasionally occur outside this period, they are very rare. Most of them come in the months of August and September, especially the more destructive ones.

The generic name for the storms is tropical cyclone, a term that designates a rotating air mass surrounding a low-pressure area (the eye) that is fairly free of clouds while the storm is active. Viewed from above, the storm rotates in a counter-clockwise direction in the northern hemisphere, and in a clockwise direction south of the equator. In the Western Pacific, the storms are called typhoons. The term hurricane properly designates such a storm in the North Atlantic. They occur in all tropical oceans except, for some unknown reason, in the South Atlantic.

Some have predicted that 1985 will be a big year for hurricanes. But such forecasts are little more than guesses. Even when there is a storm actually blowing, forecasters find it hard to predict its movement and to determine whether it is intensifying or weakening. That may come as a surprise to some, because one might expect a storm of such magnitude and intensity to be easy to observe. But it is not for several reasons.

First, the forces at work in the earth's atmosphere are powerful and delicately balanced. They are somewhat like the forces at work on a helicopter in flight, with five hundred horses trying to make the craft spin counter-clockwise at 180 RPM, balanced by a small propeller. If a gust of wind upsets the balance, those aboard the chopper will feel those horses kick. In the atmosphere, you have at the equator a wind blowing from the east at over 1000 miles per hour (Mach 1.4, 1.4 times the speed of sound) over the earth which is rotating at the same speed. At the poles, the velocity drops to zero. In between, the speed does not drop off uniformly and there are winds blowing north and south, so that the atmosphere is a turbulent mass with tremendous energies delicately balanced. It is the forecaster's job to predict which way the balance will tip.

The forecaster's job is further complicated by the lack of data available. Here is one place where Amateur Radio can help. Tropical storms develop over water and there are vast stretches of ocean where there are no weather stations. Some data comes from aircraft that penetrate the storm. Satellite photos help fill in the gaps. Ships send weather reports and occasionally a storm will approach an island closely enough for a weather report. But, flying aircraft is expensive, satellite photos don't give many details that are helpful to a forecaster and often the storms are located in areas where few ships go. In many cases reports gathered by amateurs from the Caribbean region have been most helpful to the forecasters when hurricanes are forming or are threatening an area. Reports come from the islands and also from boaters sailing those waters.

HOW TO HELP

Amateurs can do many things to help reduce the impact of these storms, summarized as follows: remote preparation, proximate preparation, during the storm, after the storm.

Remote preparation takes place whenever we install, maintain or operate our stations, or whenever we study or discuss emergency procedures. In particular, we are engaged in remote preparation whenever we acquaint ourselves with the frequencies, times and modes of operating and areas of coverage of the various nets that would be operating during an emergency. Checking in and handling traffic to make sure our station and our operating know-how are adequate for the job is also included.

Proximate preparation would involve keeping in touch with advisories on the storm, listening to the various nets to follow its progress and to be ready if one's help is needed. As noted above, amateurs can render valuable help during this time by passing weather observations to the Weather Service.

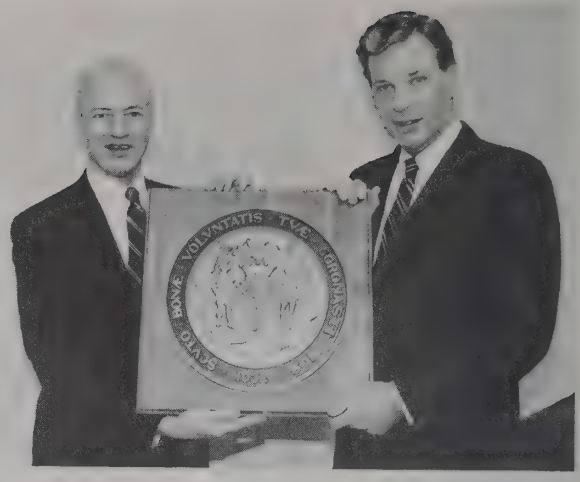
During the storm, often the greatest assistance one can render is to stay off the air and listen. Check with the various nets that are active and see where your help is most likely to be needed. For hurricanes in the Atlantic and Caribbean tropical waters, that will probably be one of the 20 meter phone nets between 14,275 and 14,325 kHz. Listen and take notes, recording the time too. Otherwise, act as you would on any net, ready to help if needed, but when not needed, stay off the air. Listen too for weak signals that net control misses. Often these can be stations especially in need of help. Remember that the storm area is where the need is so priority must be given to traffic coming out of the area. It sometimes would be helpful to have someone monitor the commercial maritime mobile service during such times to relay to the amateur nets anything significant, such as weather bulletins, distress calls, ships reported missing, etc. A second receiver is best for this, making it possible to remain available on the amateur net while monitoring 500 kHz or whatever other maritime frequency you are watching.

After the storm, there will be relief work, urgent communications to be handled and health and welfare inquiries. This activity again is intended to serve those in the disaster area, and must be fitted to their needs. Hence messages to and from officials responsible for the area take first precedence, as do messages concerning relief operations. Messages from other individuals or groups needing immediate assistance also fit into this category and may even come before everything else if lives are at stake. Then, when they can be handled without unduly delaying more important traffic, health-and-welfare inquiries may be handled, and should be handled if facilities are available. If the storm hits the U.S. or its possessions, or any country with which there is a third-party agreement, there is no problem handling the traffic. In fact, some of the third-party agreements came into being after a disaster in the country concerned showed the value of those

agreements. If there is no such agreement, only messages directly concerning immediate safety of life and property are allowed; no health-and-welfare traffic, no news bulletins, no phone patches. In such cases, sometimes temporary agreements are made for the duration of the emergency. Such agreements are better than nothing but lack the benefit of regular daily operation that is so helpful in developing our ability to perform efficiently when the need arises.

When the dust has settled, when adequate communications have been restored, when the residents of the stricken area have settled down to rebuilding what was lost, put down on paper your story about what happened. Records of amateur emergency activity are important for several reasons: radio stations are licensed to serve "the public interest, convenience and necessity" and it's always helpful to have documents that prove that Amateur Radio does so serve (local authorities have been trying in many places to legislate Amateur Radio out of business, whether because they think our antennas are eyesores, or because our signals are picked up by their electronic devices, or because we try to infect their children with the radio bug.) In addition, reports of such activity encourage other amateurs to be prepared and critical analysis of what happened often indicates what needs to be improved to do a better job next time. Who should get the report? Those involved in emergency work, whether in the local club or on a wider level, the Emergency Coordinator, Section Emergency Coordinator, ARRL headquarters. Also, Amateur Radio publications such as this one welcome such reports. The non-amateur press? Sometimes, but usually the human interest angle is what the editors are looking for. After the storm it's too late for the daily papers and the TV people. The time to contact them is while things are humming. The publicity they give Amateur Radio can be very good for public relations and they will take care of the writing. Just be sure they get the facts correctly and distinguish us from "the other service". (K4ZN)

The oldest person ever to have an amateur radio license processed was aged 102, according to the Marion County Amateur Radio Club newsletter. Meanwhile, the same FCC figures indicate that the youngest individual to go through the procedure was only age 4. Now, who says that ham radio isn't for everybody? (Westlink Report)



Maryland Governor Harry Hughes, right, presents The Great Seal Of The State of Maryland to Kenneth M. Miller, K6IR, President and Chief Executive Officer of the Penril Corporation, in appreciation for the establishment of a new high tech electronic digital data communications manufacturing facility in Gaithersburg, MD.

Under the Ken's leadership, Penril's sales have soared from $1 million in 1973 to its current rate of $70 million, certainly one of the more impressive performances by a Maryland industrial company. It operates nine manufacturing plants in the United States, Europe, Japan and Mexico, utilizing 400,000 square feet of office and manufacturing space. Penril employs 1200 people and is a manufacturer of high technology computer data communications equipment, electronic scientific test and measurement instruments and high-end audio systems oriented for the audiophile market.

Ken, K6IR is on DXCC Honor Roll and very active in DX contests. An excellent example of a ham, professional and a businessman, who always finds the time for his favorite hobby. Congratulations Ken and good luck!

W5YI WILL WRITE FOR CQ

W5YI Newsletter editor Fred Maia will not be replacing Wayne Green, W2NSD, as editor of 73 Magazine. Contrary to rumors circulating on the air for the past several weeks, Maia told Westlink Report that he was never approached by 73 Magazine to take over for the now departed Wayne Green. W5YI said that he does expect to begin writing a monthly column for CQ Magazine very soon and will also continue writing and publishing his own bi-weekly newsletter. (Westlink Report)

The founder of AMSAT/4X4 has died. Steve Friedland, 4X6MF, died in his adopted home of Israel after a massive brain hemorrhage. An avid satellite enthusiast, 4X6MF had devoted much of his time and effort in bringing the world of satellite communications to Israeli amateurs.

(Westlink Report)

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FCC NEWS

BILL GRENFELL, W4GF

"...THE TEN-METER EXTERNAL AMPLIFIER BAN COVERS THE FREQUENCIES 24.00 TO 35,00 MHz AND SO INCLUDES THE 12 METER BAND" a FCC official recently pointed out to an ARRL visitor at his office. This does not prevent use of the full 1500 watts PEP in the new band. It just means that amplifiers which can operate in the 12 meter band (as well as the 10 meter band) cannot be sold by manufacturers.

OPERATION BY UNITED STATES AMATEURS IN THE 12 AND 30 METER BANDS MUST BE ON A NON-INTERFERENCE OR SECONDARY BASIS TO THE OPERATION OF CERTAIN RADIO SERVICES OUTSIDE THE UNITED STATES. Section 97.7(b)(11) of FCC's Amateur Radio Service Rules limits the use of 10,100-10,150 kHz as follows: "This band is allocated to the fixed service on a primary basis outside the United States and its possessions. "Transmissions of stations in the Amateur Radio Service in this band are secondary to foreign fixed service use in the band." 97.7(b)(12) limits the use of 24,890-24,990 kHz as follows: "Until July 1, 1989, transmissions of stations in the amateur service shall not cause harmful interference to operation in the fixed and mobile services outside the United States. Stations in the amateur service are required to make all necessary adjustments (including termination of transmission) if harmful interference is caused."

THE FCC IS REVIEWING THE PERFORMANCE OF THE VOLUNTEER EXAMINATION COORDINATORS, AS I REPORTED LAST MONTH. "The Commission will keep track of the percentage of defective applications each VEC forwards to the FCC. The first time a mistake occurs, the FCC will correct the mistake and notify the VEC. The next time, the application will be returned without action." (ARRL Letter)

FCC ACTION ON THE ARRL REQUEST FOR LIMITED FEDERAL PREEMPTION OF AMATEUR ANTENNAS, PRB-1 "...IS EXPECTED IN THE NEXT FEW MONTHS." (ARRL Letter) "The FCC has set the fourth quarter (July, August and September) of this fiscal year as the scheduled time for action on this very important regulatory request, according to high ranking FCC sources." (WESTLINK Report)

THE FCC IS BEING ASKED "TO TAKE A LOOK AT ENHANCING NOVICE CLASS PRIVILEGES" is a statement reported in an interview with FCC Special Services Division Chief Raymond Kowalski. "The Commission is not considering any sort of codeless Novice class or any other No Code license."..."In fact, 92% of all new hams coming to amateur radio start with the Novice license. Perhaps it's time to make that license more attractive."..."So we are indeed considering the possibility of putting out for comment some of the more well thought out proposals that would give Novices additional privileges such as voice, and possibly others." (Westlink Report) The ARRL Executive Committee approved a plan for enhanced privileges for Novice class Amateur Radio operators at its May 18 meeting. (ARRL Letter) There was no indication of when it might be sent to FCC as a petition for rule making.

THE FCC HAS AUTHORIZED SPREAD SPECTRUM TECHNIQUES IN THE AMATEUR RADIO SERVICE. "The final rules...authorize amateurs to develop, test, and operate low cost spread spectrum systems." "...frequency bands above 420 MHz will be authorized." FCC is "...delaying the effective date of the rule change by one year in order to give the amateur community time to develop initial voluntary interoperability standards as they have done recently in packet radio. "In this interim period, we are continuing our policy of granting STA's (Special Temporary Authority) to those who wish to experiment in this area." (FCC REPORT AND ORDER, Gen. Docket No. 81-414, Adopted 05/09/85, Effective 06/01/85). Copies of the Order can be obtained by writing to FCC, Washington, D.C. 20554. "Spread Spectrum is a term applied to communications systems that spread radio frequency energy over a wide band width by means of an auxiliary spreading code. The spreading of the bandwidth can be accomplished in many different ways and the systems are usually classified by the type of spreading technique that they employ. The spreading of the energy in spread spectrum systems over a wide bandwidth results in several possible advantages: short range interference free overlays on other emissions, and low detectability. The primary user of spread spectrum at present is the military." (W5YI Report)

A CERTIFICATE OF SUCCESSFUL COMPLETION "DOES NOT PROVIDE A BASIS FOR AN APPLICANT TO TAKE ADDITIONAL, HIGHER-LEVEL WRITTEN EXAMINATION ELEMENTS" according to a letter to the ARRL from Raymond Kowalski, Chief of the FCC Special Services Division. "Under the rules, only an FCC license would suffice. Rule 97.25 governs 'Examination credit' and it provides credit only for telegraphy examination elements 1(A), 1(B) and 1(C)." Kowalski goes on to say that the FCC would entertain a formal proposal to change Section 97.25 of the rules to permit VEs and VECs to give credit for written examination elements to holders of appropriate Certificates of Successful Completion." (ARRL Letter)

"FCC'S LANGHORNE, PENNSYLVANIA DISTRICT OFFICE HAS FINED RONALD MONDGOCK, OF YARDLEY, PA., $1500 FOR BOOTLEGGING ON THE DELAWARE VALLEY RADIO ASSOCIATION'S REPEATER. "Assisted by local police, members of DVRA (based in Trenton, New Jersey) DFed Mondgock's house as the source of interference to their club repeater. "They then notified the FCC Engineer-in-Charge, prompting official FCC involvement and action." (ARRL Letter)

A BILL WHICH WOULD MAKE MALICIOUS INTERFERENCE A STATUTORY OFFENSE HAS BEEN REINTRODUCED IN THE HOUSE BY REPRESENTATIVE JIM BATES, D-CA. "Text is very close to that used by Senator Barry Goldwater in his Senate bill, S-66. ...There are two possible courses of action for the bill - hearings could be held on the bill itself, or it could be tacked on to some other communications bill in Congress."

(ARRL Letter)

FCC HAS PROPOSED F2A EMISSION FOR AMATEUR STATIONS ON FREQUENCIES BETWEEN 29.5 AND 29.7 MHz, in a Notice of Proposed Rule Making (NPRM) action on May 23, 1985 (PR DOCKET 85-168). Noting that the subband is used substantially for FM repeater operation, the commission reasoned that the use of F2A therein "...would further the development of FM repeater technology." Comments on any adverse effects that might occur were invited.

THE NUMBER OF AMATEUR OPERATOR LICENSEES IN EACH CLASS AT THE END OF APRIL, 1985 FOLLOW: Novice 78,942; Technician 80,906; General 116,728; Advanced 97,376; Extra 36,670; Total operators 410,622. The highest ever total of Amateur operators was 414,973 at the end of May 1983.

THE AVERAGE AGE OF AMATEURS NEWLY LICENSED DURING THE MONTH OF APRIL, 1985 WAS: 36 for the Novice Class; 38 for Technician; 46 for General; 50 for Advanced; and 46 for Extra Class. The High/low extremes of the same group were: 82/7 for the Novice Class; 72/23 for Technician; 78/22 for General; 67/23 for Advanced; 61/34 for Extra Class. The total of each class was: 1996 Novice; 78 Technician; 44 General; 8 Advanced; 3 Extra; and the total of the April new licensees was 2129.

(W4GF)

W2MLM SILENT KEY

Carl Lindermann, W2MLM, is dead at age 62. The former Vice President of Sports at both the NBC and CBS networks passed away at his home on June 2. Carl was well recognized for his many accomplishments in the broadcast industry from which he retired only a year ago. He began his career as a cameraman for the Kate Smith Hour and later became the Associate Producer of that program. In 1959, Lindermann was named Vice President of Daytime Programming, graduating to positions of Vice President of Sports at NBC before going to CBS in 1978. There, he assumed the duties of Vice President in Charge of Sports Programs. A truly avid amateur radio operator, Carl was known worldwide as one of the warmest and nicest individuals to ever grace our hobby service. One never knew when W2MLM might show up on a local repeater just about anywhere in the world and just say "hello." Carl is survived by his wife, four daughters, a son and two grandchildren.

(Westlink Report)

OPPOSITION TO ARRL 10 M PLAN

Region 1 and 2 amateurs who sponsor individual or club 10 meter beacon operations may organize opposition to the ARRL's plan to permit US Novice Class operators have expanded operating privileges in the 10 meter band. The shockwave from the recent ARRL Executive Committee meeting, where the relocation of all 10 meter beacons was recommended, does not appear as being greeted with very much enthusiasm by hams outside of Region 2. It appears as if the Executive Committee never bothered to do its homework. Had they done so, they would have learned that there are many coordinated 10 meter beacon operations operating worldwide.

(Westlink Report)

RTTY

Gwen Burnett, VE3AYL

A bit of RTTY history which only the 'Old Timers' will remember...

In 1953 when RTTY was first allowed on all amateur bands, Merrill Swan, W6AEE, edited a RTTY magazine sponsored by the Southern California RTTY Society entitled "RTTY". As Editor, he published 168 consecutive issues and started the Annual RTTY DX World Wide Contest.

In January, 1967, "Dusty" Dunn, W8CQ, took over from Merrill and continued with the RTTY magazine under the name of "RTTY JOURNAL". Canada acquired the sponsorship of the annual RTTY DX contest when Sidney Burnett, VE3GK, started the Canadian Amateur Radio Teletype Group, VE3RTT, as a Centennial project in 1967. The annual contest will be held October 19-21, 1985.

Special Event:

AMSAT and INTER-PARES were to present a demonstration of the PACSAT (Packet Communications Satellite) concept using the UoSAT-OSCAR-11 spacecraft Digital Communications Experiment at the Pacific Telecommunications Conference in Hawaii 14-16th January, 1985.

The Digital Communications Experiment (DCE) was included on the UoSAT-OSCAR-11 spacecraft, built at the University of Surrey and launched by NASA in March, 1984 to provide a 'proof-of-concept' experiment supporting a low-cost digital packet communications world-wide using a 'store-and-forward' mechanism. The DCE was designed and built by AMSAT-VITA groups in the USA and Canada to evaluate the technologies (CNOS memories, microprocessors and communications protocols necessary for a dedicated PACSAT mission to follow later.)

Following seven months of perfect operation on the spacecraft providing a redundant data path, the DCE was released for experimental purposes in January, 1985. WA3ZIA/VE3 and VE3FLL were to attend the Pacific Telecommunications Conference to present the potential uses of PACSAT supported by demonstrations of the DCE on board UO-11. These initial communications exercises are being used to evaluate the performance of the DCE and its software to support a multiple user communication system. Much work has still to be done before the experiment can become more widely available. Up and downlink RF systems are protocols which have to be evaluated and considerable on-board software has to be generated and thoroughly tested. However, the first steps have been made.

These initial experiments would not have been possible without much effort and close co-operation of the spacecraft and experiment teams in the UK, USA, Canada and Hawaii.

Bo Stjernberg, SM6ASD, is now the Vice Chairman of the Swedish Amateur Association and editor of the "SARTG" Newsletter. Bo bemoaned the sad condition of the DX frequency bands during the CARTG 1984 RTTY contest. "We had one of the most magnificent auroras ever seen here in many years, which wiped out 20 meters and shorter wavelenghts. Only a few USA stations on the East Coast were workable. The same conditions prevailed during the WAEDC contest. The disturbance was less severe then as I could hear Mediterranean stations happily working across the Atlantic, but the curtain was down for us most of the time."

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Hamfests and Convention ads are free of charge.

New subscribers to RADIOSPORTING are entitled to one free ad.

REGINA HAMFEST 85 in Saskatchewan will be held at the Wascana Institute of Applied Arts and Sciences in Regina on August 2,3 and 4, 1985. Commercial exhibits and flea market tables at no charge. Contact Lorne Morgan, VE5AGM or George Kosmenko, VE5GF (305) 543-7923

HUNTSVILE, HAMFEST held on the third weekend in August inside air-conditioned Von Braun Civic Center, Huntsville, Alabama. Josh Kelly, N4AVB (205) 837-0569

CLIPPERTON DX CLUB CONVENTION for Hams, DXers and Contesters held on Sept. 21, 1985 in Paris, France. Contact Jacques Saget, F6BEE, 34 Rue Maurice Ravel, F 78690 - Les Essarts Le Roi, Tel. (3) 041.57.37

NEW BERLIN HAMFEST sponsored by Sangamo County Fair Assn. will be held on Sunday, Sept.22 at the Sangamon County Fairgrounds in New Berlin, Ill. from & a.m. to 3 p.m. Talk-in 146.52 and 146.88. For info contact K9QFR, Box 2, Pleasant Plains, IL 62677 (217) 626-1634

RSO ONTARIO CONVETION sponsored by Radio Society of Ontario and CRRL on Sept. 27 - 29, 1985 at Holiday Inn, City Centre in London, ON. Exhibits, technical, DX and Contest forums. For info contact RSO/CRRL '85, Box 73, Hyde Park, ON NOM 1Z0 (519) 471-7691

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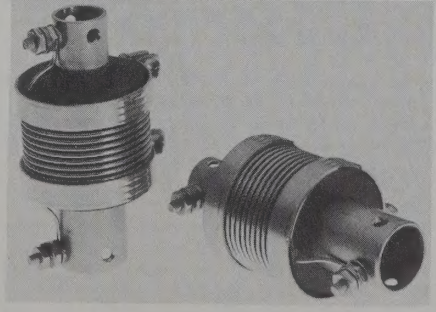

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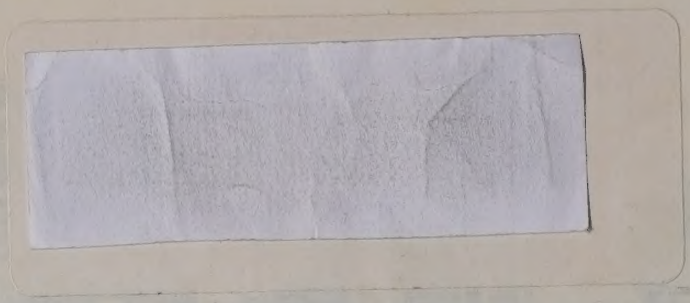

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INTERNATIONAL RADIOSPORT ASSN.

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Purpose and objectives:

1. To promote international friendship and goodwill through sportsmanship, radio contesting and DXing.

2. To improve the quality of amateur radio operators and operating through education and experience, by voicing the opinions of radio amateurs that are experienced and have contributed to the hobby.

3. To promote amateur radio contesting and other operating-related activities as a sport, and to provide the publicity and recognition that it deserves in the public media.

4. To publish timely articles in the monthly magazine "RADIOSPORTING" on various subjects of interest to Contesters, DXers, SWL, VHF, UHF and microwave enthusiasts, on RTTY, SSTV, computers in communications, fox hunting and anything of interest to the active ham striving for self-improvement. To feature technical articles on equipment design and modifications, antenna construction, radio-wave propagation, and commercial equipment reviews by qualified people.

5. To organize, as an annual event, the "International Contest Symposium," which runs parallel (evenings) with the Dayton Hamvention; to feature timely topics with the participation of some of the world's leading amateurs at the Syposium.

6. To hold an annual Awards Dinner with an entertainment program, where awards for various achievements will be presented.

7. To maintain and publish all time record tables for significant contests.

8. To sponsor and run an annual World Contest Championship, based on results of a number of major contests, with the annual "Contester of the Year" awards in various categories.

9. To administer the "Contest Hall of Fame" and vote on awarding membership to those who have significantly contributed to the sport of contesting.

10. To coordinate and assist in the scheduling of international contests.

11. To hold regular weekly meetings on air on 20 and 80 m. (14.200, 3.830)

12. To provide an automatic, computer controlled bulletin station that transmits the latest DX and Contest news on CW and RTTY.(14.098)

13. All in all, the IRSA is dedicated to the pursuit of excellence and quality in amateur radio by promoting, publicizing and leading the way.

14. Attractive numbered membership certificates and badges are issued to members.

15. IRSA is run by contesters who are selected for their accomplishments and it is independent of any national or commercial organizations.

16. IRSA will assist and sponsor Contests/DXpeditions, Trophies and other radio sporting and publicity events.

17. IRSA is a non profit organization, with all proceeds to be used to finance events and awards sponsored by IRSA and to cover expenses incured by Association.

18. IRSA members can display the IRSA logo on their QSL cards and correspondence; members agree to obey the Contester's Code of Ethics and to promote it.

The initial fee to join the IRSA is US $12; it includes the cost of a certificate and a badge. The yearly membership dues are US $5. (Or 24 and 10 IRCs resp.)

Honorary Life Membership will be awarded to those who significantly contribute to IRSA and the sport of contesting.

Members are entitled to be elected and to elect officers of IRSA. They will also enjoy many services and privileges offered exclusively to members.

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Editorial offices: RADIOSPORTING
Box 65, Don Mills
ON, Canada, M3C 2R6
Telephone - (416) 438-6313 (24 hrs)

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PUBLISHED BY: TRETINA PRINTING INC.
Hwy. 36, Airport Plaza
Hazlet, N.J. 07730 U.S.A.

PRINTED IN USA

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